THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

100 CAMBRIDGE STREET, BOSTON MA 02114

Request for Determination of Insignificance
Under the Interbasin Transfer Act
MGL Chapter 21 Sections 8B - 8D

Ledgeview at Wrentham
Wastewater Discharge

WRC Decision
March 10, 2016

Decision

On March 10, 2016, the Massachusetts Water Resources Commission (WRC), by a unanimous vote, found that Ryan Development LLC's proposal to transfer wastewater associated with a proposed development, Ledgeview at Wrentham, was insignificant under the Interbasin Transfer Act (ITA).

Background

On December 11, 2015, the WRC received a request for determination of insignificance (RDI) under the ITA (M.G.L. Chapter 21 §§ 8B-8D) from Onsite Engineering, Inc. on behalf of Ryan Development LLC, for a wastewater transfer from a proposed development, Ledgeview at Wrentham. The WRC discussed the proposal at its February 11, 2016 meeting. The proposed development will be mixed use and straddles the towns of Wrentham and Plainville in the Taunton River basin (Figure 1). Water supply will be provided by the Town of Wrentham, which has sources in the Charles River Basin and Taunton River Basin (Figure 2). Wastewater will be discharged within the Taunton River basin through ground water discharge sites in both towns. Only the portion of the water supply originating from the Charles River Basin sources which will be disposed of via the ground water discharge system within the town of Plainville (0.016 MGD) is subject to review under the ITA (Figure 1).

This application was evaluated against the applicable criteria of 313 CMR 4.04(4) Criteria for Determination of Insignificance of the Interbasin Transfer Act regulations and the criteria contained in the 2014 Water Resources Commission Interim Policy for Transfers Primarily Derived from Lakes, Ponds, Reservoirs or Other Impoundments ("December 2014 Policy").

Proposed Transfer

The proposed development will obtain water from the Town of Wrentham. The 52-acre development property includes 6 acres within the Taunton River basin section of the Town of Plainville. The development plans are for mixed-use including hotels, residential, medical offices, assisted living, and retail/restaurants. The total maximum day water demand for the development is 111,000 gallons per day (gpd). The RDI application provided an analysis of how much water would be derived from Wrentham's sources in the Charles River basin (71.5%) and from the Taunton River basin (28.5%), proportioned by well capacities (maximum daily rates). Thus, the maximum day water supplied from the Charles River basin will be 79,365 gpd. Of this amount, only the amount that is disposed in Plainville is subject to the ITA. Water supplied from the Taunton River basin will be 30,635 gpd and does not constitute an interbasin transfer.

Wrentham's water supply sources within the Charles River basin consist of wells located in an aquifer adjacent to Lake Pearl (impounded by Red Dam) and a smaller unnamed downstream impoundment supported by Eagle Dam. Eagle Brook flows out of the downstream impoundment. The drainage area to these impoundments is 7.49 square miles. The total lake area is 212 acres, and its average depth is 12 feet. The impoundments hold approximately 829 million gallons of water.

The development's wastewater disposal will be via four septic leachfields (effluent disposal areas). Three of the effluent disposal areas are located within Wrentham, and are not subject to interbasin transfer jurisdiction because of the intra-town exemption. The largest of the four effluent disposal areas is planned to straddle the Wrentham/Plainville border. The RDI application indicates that 22,220 gpd of wastewater will be discharged via the Plainville section of the leaching field, or 20% of the total water supply to the project. Of the 79,365 gpd water supply derived from the Charles River basin, 20% would be discharged as wastewater to Plainville, equating to a maximum day interbasin transfer of 15,873 gpd (0.016 MGD). The average day discharge is 60 percent of the maximum day, or 9,524 gpd.

Analysis

Ledgeview at Wrentham's Request for Determination of Insignificance was reviewed by staff from the Department of Conservation and Recreation (DCR), the Department of Environmental Protection (MassDEP), the Division of Fish and Wildlife, the Natural Heritage and Endangered Species Program (NHESP), and the Division of Ecological Restoration against the criteria for insignificance listed in the Interbasin Transfer Act regulations, 313 CMR 4.04(4) and the December 2014 Policy.

The December 2014 Policy applies to transfers of water that are primarily derived from lakes, ponds, reservoirs or other impoundments, either directly or through ground water withdrawals. Review of available documentation indicates the Wrentham wells meet the policy conditions because of their proximity to and strong hydraulic connection with Lake Pearl and Eagle Pond. Wells 2 and 3 are located on the south side of Route 140

between the road and Lake Pearl. There is a topographic divide that trends generally northwest to southeast on the north side of Route 140 to the west of Wells 2 and 3; water on the northeast side of the divide flows toward Eagle Brook to the northeast, and water on the southwest side flows southeastward into Lake Pearl. MassGIS indicates that Wrentham's wells are located within 650 feet of the Lake Pearl shoreline, within an aquifer formation that is continuous to the shoreline and beneath the Lake. The area around Lake Pearl is mapped as sand and gravel glacial outwash. Sand and gravel esker formations are visible at the ground surface, and exhibit the same geologic materials that are found in the underground aquifers, in which the wells are constructed. Geologic cross sections from pumping test reports for the Wrentham wells show a thick layer of sand and gravel continuous from the wells to the impoundments and throughout the area (Whitman & Howard, 1992 and Weston & Sampson, 2000). Water flow in the area is generally south to north. Southwest of Wells 2 and 3, Uncas Brook flows northwest to southeast into Lake Pearl. Ground water that is pumped from Wells 2 and 3 would have discharged to Lake Pearl/Eagle Pond in the absence of pumping. Well 5 is located on a peninsula of land on the southwest side of Lake Pearl, where flow is generally south to north. The pumping test reports concluded that Wells 2 and 3 recharge was predominantly derived from the south (Lake Pearl/Eagle Pond); and Lake Pearl is the source of water to Well 5. Therefore, the impoundments serve as hydrologic recharge sources to the wells and stabilize the ground water drawdown cones surrounding the wells. The wells derive their recharge essentially from the Lake and Pond. Thus the December 2014 Policy is applicable for analysis of this interbasin transfer request for determination of insignificance.

Eagle Brook flows northward out of the smaller impoundment downstream of Lake Pearl (also referred to as Eagle Pond). The Eagle Brook tributary joins the Charles River approximately three miles downstream. The elevation of Lake Pearl and Eagle Pond are several feet higher than Eagle Brook on the downstream (south) side of Route 140. It is likely that some degree of water seepage from the impoundments provides enhanced recharge to Eagle Brook, especially during dry summer periods. Summer flow measurements in Eagle Brook have not been made to confirm this hypothesis, however.

It is expected that any changes in Lake Pearl spill timing and magnitude caused by the additional withdrawal for this transfer will be imperceptible. The dams at Lake Pearl, Red and Eagle dams, are owned and operated by the Town of Wrentham. At a January 2016 site visit, the Eagle Dam spillway was observed to be breached, with water flowing downstream. At the Red Dam on Lake Pearl, a narrow sluiceway was open, with a water elevation about two feet higher on the upstream (Lake Pearl) side than the downstream side. Staining on the sluiceway walls indicated a normal upstream water level about two feet higher than observed in January 2016. This is likely the summer water elevation, increased for recreational use (the town has a boat ramp on Lake Pearl). There did not appear to be low-level release mechanisms at either of the dams. Lake levels and dam operation appear to be primarily related to recreational needs, and flow into Eagle Brook appears to be facilitated by the breached dam. The additional

withdrawal for the interbasin transfer request is not expected to be significant to either lake levels in the impoundments or flow in Eagle Brook.
An outline of how this proposed transfer addresses the criteria for insignificance follows:

Criterion	**Ledgeview's Application**
(a) Is not over 1 mgd	Meets
(b) Is less than 1 mgd on an annualized basis and is temporary, of short duration and for a purpose other than water supply use	Not Applicable
(c) Additional flow is less than 5% of the instantaneous flow	Not Applicable (December 2014 Policy)
(d) The 95% exceedance flow will not be diminished	Not Applicable (December 2014 Policy)
(e) Special resource values will not be adversely affected	Meets
(f) The Commission shall consider the cumulative impacts of all past, authorized or proposed transfers on streamflows in the donor basin	Meets
That the cumulative annual amount of the transfers including the proposed amount, in all cases, is less than one percent (1%) of the average annual precipitation on the drainage area of the water body, and five percent (5%) of the drought year inflow to the water body (December 2014 Policy)	Meets
That consideration has been given to measures to protect instream flows, as described in 4.04(3)(i), and where appropriate, any such measures proposed as part of the application. (December 2014 Policy)	Meets

In terms of the Water Resources Commission's December 2014 policy, the thresholds for average annual rainfall values for the Charles River basin, as well as the thresholds for average annual precipitation and drought year inflow are compared to the interbasin

transfer request below. The interbasin transfer request is an order of magnitude below the thresholds.

	Threshold: 1% of Average Annual Precipitation	Threshold: 5% of Drought Year Inflow	IBT Request	IBT Request Below Lowest Threshold?
Charles River Basin	0.166 MGD	0.141 MGD	0.016 MGD	Yes

With respect to cumulative impacts of past interbasin transfers from the Charles River basin, the Elm Bank wells, downstream in Dover, were approved by the Water Resources Commission for 4 MGD in 1992. The Elm Bank wells were approved for this amount with the assumption that water from the wells would be shared by the Towns of Natick, Needham, Wellesley and Dover. To date, only the Town of Natick has exercised its rights to this wellsite. The wells are subject to streamflow level-triggered shutoffs. The Elm Bank site is located on the mainstem of the Charles River, several miles downstream of the Wrentham wells. Analysis using the MassDEP online WMA Permitting Tool shows that the proposed interbasin transfer (0.02 cfs) would not be measurable at the August median flow in both the Elm Bank well subbasins (21105 and 21109, approximately 30 cubic feet per second or cfs) or at the outlet of the Charles River (subbasin 21219). The transfer will not cause a change in the Groundwater Withdrawal Category in any of these subbasins.

Special resource values in the vicinity of Lake Pearl were identified in the RDI. Priority Habitat of Rare Species 1411 is present at Lake Pearl and Eagle Brook. NHESP has indicated that the Bridle Shiner is present in Lake Pearl, but that no significant impact is expected as the proposed volumes are within Wrentham's previously authorized WMA permit limit.

As noted, the proposed transfer is less than the threshold amount for insignificance in accordance with the WRC December 2014 policy for transfers impacting surface water, and is not expected to cause negative impacts on instream flow or special resources downstream of Lake Pearl. The proposed transfer is approximately 2% of Wrentham's authorized withdrawal from the Charles River basin and will not cause the Wrentham Water Department to request an increase in their WMA permit, nor to increase the capacity of these wells.

A summary of how the application addressed these criteria is found in Attachment 1.

Decision

After reviewing the proposal and the comments received, **the WRC finds that this project is insignificant under the Interbasin Transfer Act.**

Figure 1

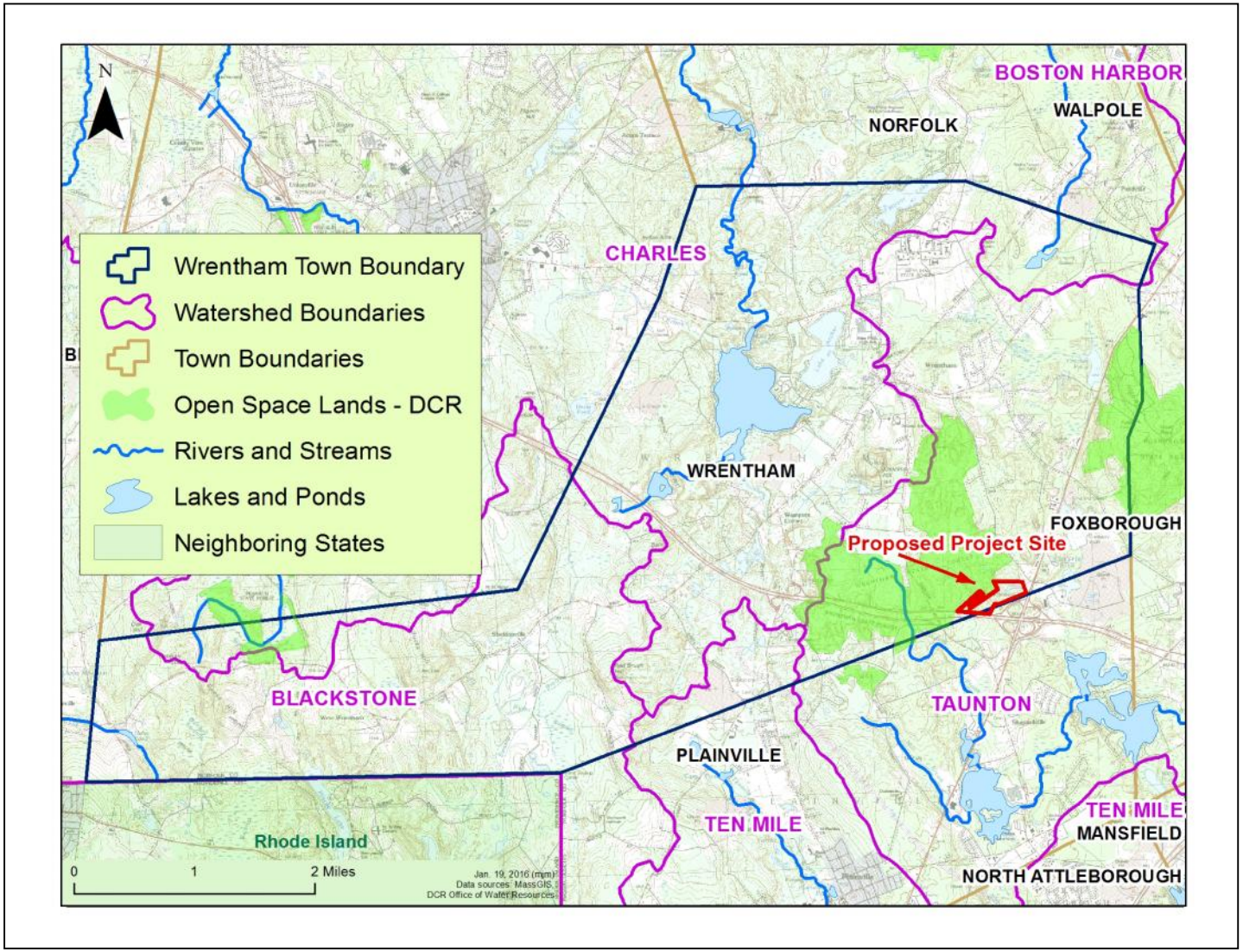
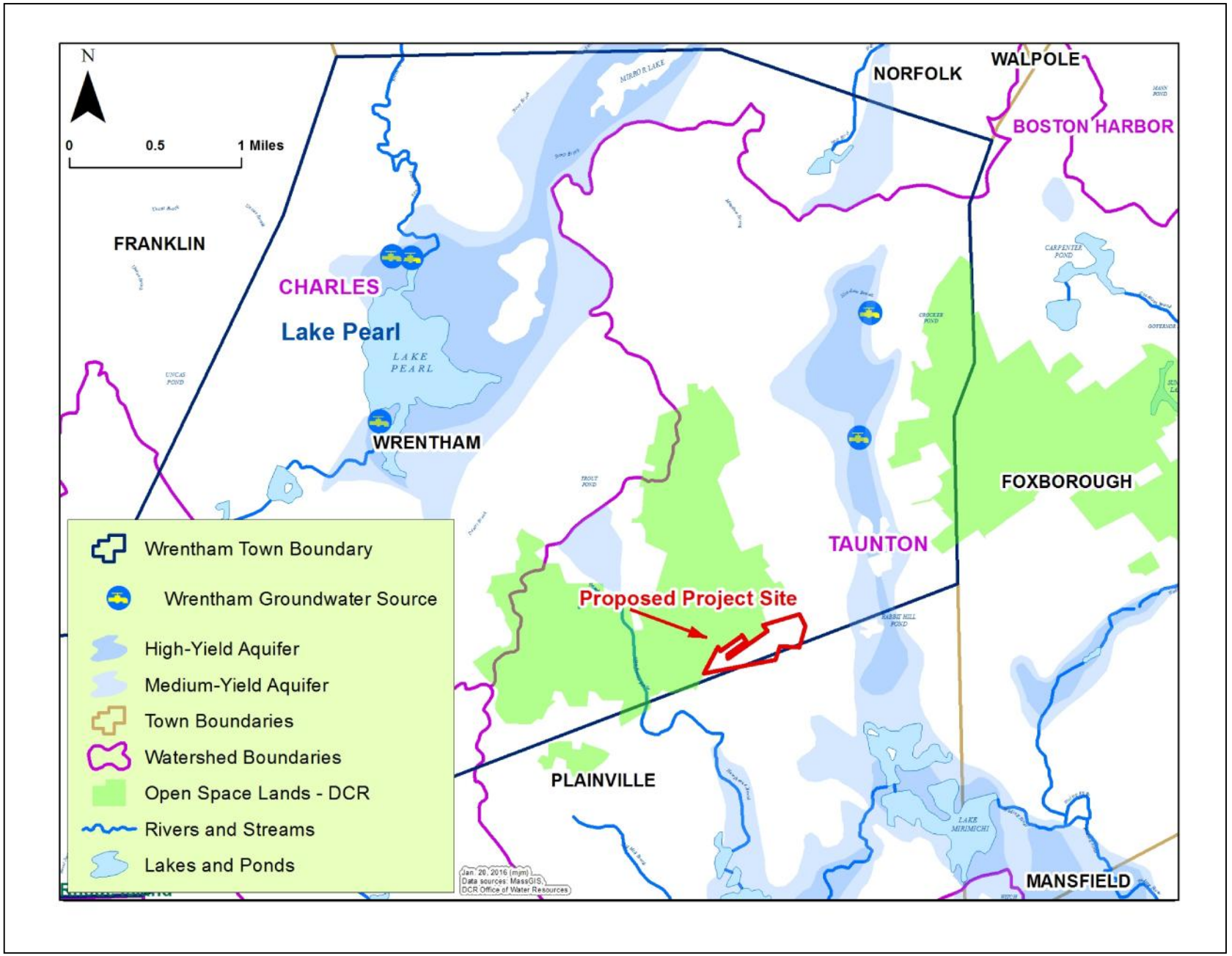

N
Wrentham Town Boundary
Watershed Boundaries
Town Boundaries
Open Space Lands - DCR
Rivers and Streams
Lakes and Ponds
Neighboring States
BOSTON HARBOR
WALPOLE
NORFOLK
CHARLES
WRENTHAM
FOXBOROUGH
Proposed Project Site
BLACKSTONE
TAUNTON
PLAINVILLE
TEN MILE
TEN MILE
MANSFIELD
NORTH ATTLEBOROUGH
Rhode Island
0
1
2 Miles
Jan. 19, 2016 (mm)
Data sources: MassGIS,
DCR Office of Water Resources

Figure 2


N
0
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1 Miles
FRANKLIN
CHARLES
Lake Pearl
LAKE PEARL
WRENTHAM
NORFOLK
WALPOLE
BOSTON HARBOR
FOXBOROUGH
TAUNTON
Proposed Project Site
PLAINVILLE
MANSFIELD
Wrentham Town Boundary
Wrentham Groundwater Source
High-Yield Aquifer
Medium-Yield Aquifer
Town Boundaries
Watershed Boundaries
Open Space Lands - DCR
Rivers and Streams
Lakes and Ponds
Jan. 20, 2016 (mjm)
Data sources: MassGIS,
DCR Office of Water Resources

Attachment 1
Request for Determination of Insignificance
Ledgeview at Wrentham Wastewater Discharge

Criterion	Proposal Meets	Explanation
(a) Is not over 1 mgd	Yes	Net transfer will be 0.016 mgd
(b) Is less than 1 mgd on an annualized basis and is temporary, of short duration and for a purpose other than water supply use)	Not Applicable	Proposal is long-term wastewater discharge.
(c) Additional flow is less than 5% of the instantaneous flow	Not Applicable	The transfer is primarily derived from Reservoirs (December 2014 Policy)
(d) The 95% exceedance flow will not be diminished	Not Applicable	The transfer is primarily derived from Reservoirs (December 2014 Policy)
(e) Special resource values will not be adversely affected	Meets	No impacts expected
(f) The Commission shall consider the cumulative impacts of all past, authorized or proposed transfers on streamflows in the donor basin	Meets	The WRC approved a transfer from the Elm Bank wells in 1992. This wellsite is located on the mainstem of the Charles River, several miles downstream of the Wrentham site. It is not anticipated that this transfer of 0.016 mgd will have a discernible impact on downstream flows.
That the cumulative annual amount of the transfers including the proposed amount, in all cases, is less than one percent (1%) of the average annual precipitation on the drainage area of the water body, and five percent (5%) of the drought year inflow[1] to the water body	Meets	The proposed transfer is less than 0.1% of average annual precipitation. The proposed transfer is less than 1% of drought year inflow..
That consideration has been given to measures to protect instream flows, as described in 4.04(3)(i), and where appropriate, any such measures proposed as part of the application.	Meets	Changes to downstream flow are expected to be imperceptible from the current operating condition as a result of the requested interbasin transfer.

[1] Drought year inflow is the drought basin yield: the annualized Q90 streamflows in a water source based on averaging estimated near natural monthly Q90 streamflows. It is an estimation of the water that would be available in an river basin that is unimpacted by water withdrawals during the probable driest period that is likely to occur