

# Update of Priorities for Expansion of Streamflow Gage Monitoring In Rhode Island February 22, 2006

## A report to the Narragansett Bay, Rivers and Watershed Coordination Team From RIDEM and RIWRB

In December 2005, the Narragansett Bay, Rivers and Watersheds Coordination Team (CT) endorsed as one of five top priorities for additional investment the expansion of the network of streamflow gages operating in Rhode Island. Specifically, the CT recommended an additional \$242,000 be secured to add ten gages to the network in state FY2007. It was presumed that the locations to be added would reflect those identified as highest priority in the 2004 DEM-WRB Streamflow Committee report that summarized recommendations for expanding the streamflow gaging network.

At the February 8, 2006 meeting of the RI Environmental Monitoring Collaborative (RIEMC), the issue of re-visiting the priorities identified in 2004 in light of new information was raised. Given the emerging prominence of water supply management issues related to Kent County as well as the nutrient reduction strategy for upper Narragansett Bay, it was agreed that a review of the priority sites for new gages was timely and appropriate. The WRB and DEM agreed to meet with USGS to discuss these issues, as well as seek input from other stakeholders, and report any proposed recommendations to the CT at its next meeting. DEM, WRB and USGS met initially to verify the status of selected gages and their relationship to work conducted since 2004. Further discussion was held with the DEM, WRB and Dr. Harold Ward, representing a coalition of stakeholders. The following report summarizes the result of the review with respect to state fiscal year FY2007.

### **1. Status of Existing Network:**

There are funding issues with respect to the existing network of 20 gages. DEM has been allocated \$68,000 and the WRB \$75,000 for FY2007. This amount, \$143,000 in combination, should support continued operation of 16 existing gages. Existing gages *not* adequately funded include:

**Pawtuxet River - Cranston:** This gage, previously funded by the Army Corps of Engineers, went off-line temporarily in 2005 despite its critical importance to measuring river discharges into the upper Bay. The WRB agreed to fund the gage on a temporary basis for the remainder of state FY06. The WRB needs additional state funding of \$11,000 to sustain the gage in FY2007.

**Blackstone River at Roosevelt Ave (Pawtucket):** This gage installed for a specific project stopped operating in the fall of 2005. It provides critical data on the river discharge into the estuarine Seekonk and Providence Rivers and eventually upper Narragansett Bay. The station should be put back on-line as soon as possible. Total estimate of state costs to operate and provide a permanent structure for FY2007 - \$21,500.

## **2. Priorities for Expanding the Network – Narragansett Bay Management:**

From a perspective of working to restore the water quality of Narragansett Bay, it is important to make regular measurements of the river discharges into the ecosystem. The existing RI stream gage network, if funded as above in (1), is adequate for this purpose. Existing gages measure near the mouths of the Blackstone and Pawtuxet Rivers. Additionally, gages exist on the Ten Mile, Moshassuck & Woonasquatucket Rivers.

RI needs to ensure that the Taunton River in Massachusetts, a large discharger of freshwater into Mt. Hope Bay is also properly gaged. It is our understanding that MA DEP is currently in the process of prioritizing gages within its network. A draft DEP plan currently indicates that the Taunton needs two gages. DEM will investigate the status of this further and provide updated information on the status of gages in MA that are of interest to RI.

## **3. Expansion Priorities – Update**

The original priorities for expansion were reviewed. The list in the 2004 report remains appropriate with the following notable exception that gages are needed in the Big River Reservoir as soon as possible to support groundwater supply development. As an initial estimate, it was agreed that three gages (01115800, 01115630, 01117530) at minimum are needed. In 2004, these gages were given priority rankings of 4, 6 and 7 respectively. One was in the original top priorities. It also needs to be recognized that the exact configuration of gages needed may be modified based on the specific plan for the development of withdrawals that is selected and pursued in the permitting process. In other words, it may eventually be temporarily necessary to have more than three gages or to locate them in other areas within the Big River watershed.

The remaining gages ranked as priorities 1-4 continue to be appropriate targets for expansion of the gages network. There are management data needs associated with each location. There are no further changes recommended to the list.

## **4. Funding Required**

The original estimate of \$242,000 assumed construction of permanent stream gages structures at all sites. DEM, WRB and USGS determined that as an alternative some locations could be established with a project gage set-up with deferral of the full construction costs to create a permanent structure to later years. The advantage of this approach is that it allows data collection to begin sooner at more critical locations. The costs associated with the gage network are summarized in the attached table. Data collected continuously would be transmitted hourly and posted to publicly available USGS website. The estimates are derived using the following assumptions for FY2007:

- State cost to maintain additional gage annually - \$11,000;
- Estimate to install new site – \$13,500 (project level structure);
- Estimated cost to re-establish a prior gage - \$10,500.

**Updated Priorities for State Investment  
in the RI Streamflow Gage Network (2/22/06)**

<b>Gage</b>	<b>Location</b>	<b>2004 Priority Ranking</b>	<b>Gage Status</b>	<b>FY2007 Budgeted Funds</b>	<b>FY2007 Estimated match (USGS)</b>	<b>FY2007 Requested new Funds</b>	<b>Estimated Match to new funds (4)</b>	<b>Future State Annual Operating Costs</b>
Existing 8 gages	DEM sponsored locations (1)	E	Perm.	\$68,000	\$24,000	0	0	\$68,000
Existing 8 gages	WRB sponsored locations (2)	E	Perm.	\$75,000	\$24,000	0	0	\$75,000
Pawtuxet River	Cranston (01116500)	E	Perm.	0	0	\$11,000	0	\$11,000
Blackstone River –	Roosevelt Ave-Pawtucket (01113650)	4	Project	0	0	\$21,500	0	\$11,000
<b>Subtotal- Existing Network</b>				<b>\$143,000</b>	<b>\$48,000 (3)</b>	<b>\$32,500</b>		<b>\$165,000</b>
Big River	Big River (0115800)	4	New project			\$19,500*	\$3,000	\$9,000
	Nooseneck	6	New project			\$19,500	\$3,000	\$9,000
	Carr River	7	New project			\$19,500	\$3,000	\$9,000
<b>Subtotal – Big River</b>						<b>\$58,500</b>	<b>\$9,000</b>	<b>\$27,000</b>
Pawcatuck –Upper	Chickasheen	1	Project			\$21,500	0	\$11,000
Pawcatuck – Lower	Mainstem at Kenyon	1	Project			\$21,500	0	\$11,000
Beaver	Lower Beaver	2	Project			\$21,500	0	\$11,000
Hunt (upper)	Hunt River	2	New			\$24,500	0	\$11,000
Pawcatuck	Burdicksville	2	Project			\$21,500	0	\$11,000
Westport	Adamsville	3	Discont			\$21,500	0	\$11,000
Pocasset		4	New Project			\$24,500	0	\$11,000
Millers	Abbott Run	4	Temp			\$21,500	0	\$11,000
<b>Subtotal – Expansion sites</b>						<b>\$178,000</b>		<b>\$88,000</b>
<b>Total</b>				<b>\$143,000</b>	<b>\$48,000</b>	<b>\$269,000</b>	<b>\$9,000</b>	<b>\$280,000</b>

(1) Branch River, Nipmuc River, Catamint Brook, Moshassuck River, Ponnegansett River, Usequepaug River, Ten Mile river, Woonasquatucket River

(2) Beaver River, Chipuxet River, Hunt River, Pawcatuck River, South branch – Pawtuxet River, Queen River, Upper and Lower Wood River.

(3) USGS also contributes about \$14,000 to operation of other gages in the network (Pawcatuck/Wood River & Peepthead Brook – Providence Water Supply Board).

(4) Matching support from USGS subject to availability of federal funds. There are currently no funds earmarked for FY2007 for additional gages.

\* USGS estimated \$9,000 per gage for these sites.