

STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director
DATE: March 11, 2009
SUBJECT: MWRA Water System Expansion

COMMITTEE: Water Policy & Oversight

X INFORMATION
 VOTE

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RECOMMENDATION:

For information only. This staff summary provides an update to the Board on ongoing discussions between MWRA and Executive Office of Energy and Environmental Affairs staff regarding water system expansion. The discussions have centered on ways to streamline existing duplicative regulatory processes and reviews, as well as on suggestions to integrate a number of sustainability objectives into MWRA system expansion. This process has benefitted from testimony from participants in the June 2006 forum hosted by MWRA’s Board of Directors as well as from more recent input from stakeholder organizations, including MWRA’s Water Supply Citizens Advisory Committee and the Smart Growth Alliance. Highlights of discussions are provided below.

BACKGROUND:

As a result of declining water use and successful conservation efforts within the existing MWRA service area, MWRA is well positioned to serve additional communities with demonstrated water need. In 2008, MWRA water system demand was more than 100 million gallons a day less than demand in 1984, when the Interbasin Transfer Act (ITA) was enacted. In recent years, stream flows below MWRA Wachusett and Quabbin Reservoirs have complied with or exceeded permit expectations and MWRA’s has actually increased discharges in recent years. In contrast, stream flow depletion elsewhere in the state is a growing concern, and detailed water quantity and quality studies have consistently documented that withdrawals from local sources of supply in certain river basins, or portions of river basins can contribute to a decrease in natural recharge and stream flow. Use of MWRA’s large, multi-year Wachusett and Quabbin storage reservoirs to reduce or replace withdrawals from local sources can continue to be part of an effective regional water management approach to reduce or alleviate low-flow conditions in stressed river basins or river reaches. Sale of MWRA water to communities in stressed basins can also replace additional permitted but unused water, preventing conditions from getting worse.

DISCUSSION:

The discussions related to an expansion of MWRA's water supply system have centered on the Authority providing 12 mgd to communities not currently served by MWRA, conditioned upon new communities satisfying certain requirements and subject to regulatory approvals under an expedited approval process. Discussions also include the matching of the 12 mgd to new communities with a downstream release plan to further increase current minimum releases downstream of Quabbin and Wachusett totaling 12 mgd, except during periods of drought and subject to MWRA's operations/engineering constraints. The discussions have also addressed inclusion of requiring receiving communities to meet Smart Growth criteria as a precondition of receiving MWRA water. The following components of an expanded water supply system have been included in our discussions:

EXPEDITED APPROVAL PROCESS - OPTIONS AND ISSUES

An expedited approval process under the Massachusetts Environmental Policy Act (MEPA) and the Interbasin Transfer Act (ITA) has been considered¹:

- A Single Donor Basin Environmental Impact Report. A one-time donor basin review assessing the effects on the Quabbin and Wachusett Reservoirs and downstream rivers has been discussed. This review would satisfy both ITA criteria as well as the criteria of MWRA's Admission Policy, OP#10, Admission of New Communities to the MWRA system.

The basis for the one-time donor basin review would be the analysis used in prior MEPA and ITA submissions for the addition of new communities to the MWRA system (i.e. Reading). Mitigation would be addressed, including flow augmentation provisions (an additional 12 mgd of reservoir releases), and other measures to enhance the environment (see section Habitat and Fisheries, below).

- A Single Environmental Impact Report (EIR) analysis for pre-identified Multiple Receiving Communities is also being considered. (An EIR with up to six self-selected communities has been used as a placeholder.) The intent of the single EIR analysis for receiving communities would be to reduce the overall time frame for review as well as the cost of EIR/MEPA documentation that each individual community would have to bear. The communities' performances against specific water conservation criteria would be assessed. Water conservation criteria are already defined in both MWRA and the ITA (as a criterion for admission, MWRA must find that effective demand management measures have been undertaken and the ITA requires that all practical measures to conserve water have been taken).

¹ The current process for admission of new communities can result in duplicative donor basin reviews. A lengthy documentation process may serve as a disincentive to joining MWRA. That process typically includes MEPA and ITA review through a Joint Scope that addresses both donor basin and receiving area criteria derived from the ITA requirements. The criteria overlap considerably with MWRA criteria for approval of new communities so that once a community has received ITA approval; it has also satisfied MWRA's admission criteria.

The ITA also requires that the Water Resources Commission (WRC) must find that all reasonable efforts have been made to identify and develop viable sources in the receiving area. In the past, satisfying these criteria has required time-consuming and costly local source investigations. To address this concern, a SWAT team of EOEEA/WRC/DEP/DCR/MWRA staff could provide technical assistance to the communities. The SWAT team could also assist communities in other aspects of documentation and investigation, where required, such as conservation.

- A reinterpretation of the regulations that WRC follows to evaluate “insignificant” transfers could be requested. The WRC may find transfers of 1 mgd or less to be insignificant if certain criteria are met. The level of review associated with “A Determination of Insignificance” is less than the review associated with a “Significant Transfer.”

SMART GROWTH --- OPTIONS AND ISSUES

To address concerns that MWRA water supply expansion could lead to sprawling development, the inclusion of Smart Growth criteria in MWRA’s policy and criteria for admission of new communities has also been discussed. Several means of defining what are reasonable smart growth goals and criteria are under discussion.

One common element is to exempt new MWRA communities from meeting additional smart growth criteria if certain conditions are already met. Circumstances where additional smart growth criteria might not be required could include:

- Communities simply replacing local water supply sources. For example, if the community is seeking MWRA water to replace but not supplement its local supply (such as Reading, which pursued admission to MWRA to reduce impacts of its withdrawals on the Ipswich River Basin); OR
- Communities acquiring a negligible amount of water equivalent to the water needs of a specified percentage (perhaps 5%) of the community’s existing housing stock, OR
- Communities that are largely built-out (little vacant developable land remains).

Communities unable to receive an exemption under one of these three conditions would have to meet certain additional smart growth criteria. MWRA and EOEEA are still discussing specific requirements that might apply to these communities. However, they could involve requirements related to density of development and zoning such as:

1. A performance based system that sets a density benchmark for new growth and monitors municipal performance on an annual basis. Under this system growth would be required to meet specified land consumption standards (such as ¼ acre per new housing unit for residential and a Floor Area Ratio of 1 for commercial or mixed-use); OR

2. A zoning based system that requires the establishment of a mixed-use district with capacity for by-right construction of housing units (equal to a small % of the town's existing housing units) AND the use of open space residential design (cluster) for residential developments of 5 or more units on land zoned at or above 1 acre/unit; OR
3. A flexible hybrid system under which the MWRA would make a finding that a plan and regulatory practices are in place to ensure that future growth made possible by water sales is consistent with the Sustainable Development Principles. MWRA could also amend its Admission Policy, OP#10, Admission of New Communities to the MWRA System, to include flexible Smart Growth criteria. MWRA would add a Smart Growth criterion to the criteria section of the policy such as: MWRA must find that the community has adopted a plan or practices to plan for and promote livable communities and plan regionally to protect and preserve environmental resources, open space, working landscapes and unique natural environments and reduce air and water pollution and is encouraging development that conserves resources, minimizes waste, utilizes good designs, promotes environmental health and enhances the community in which it is located. MWRA would add Smart Growth documentation requirements, such as, copies and description of local regulations, policies and plans that demonstrate municipal consistency with state policy and Executive Order 385; copies and identification of bylaws, ordinances, and regulations or plans that encourage Low Impact Development in order to address stormwater; and a copy of local zoning for concentrated development and mixed use.

Information included in the MWRA application would also be reviewed as part of the "Receiving Community" review under MEPA. This could enable the MWRA to consider Regional Planning Agency (RPA) comments on a community's plans and regulations in its review. (MEPA regulations require that MEPA documents be submitted to the appropriate RPAs and also require that Smart Growth principles be addressed in MEPA per Executive Order 385 which states: The Executive Office of Environmental Affairs shall consider the consistency of Agency actions with the provisions of this Order in its review of any project requiring the filing of an Environmental Notification Form pursuant to the Massachusetts Environmental Policy Act.)

Using the menu of approaches outlined above adopts a philosophy that one size does not fit all. These options could encourage smart growth and emphasize interagency coordination by remaining flexible and enabling communities who are committed to smart growth, and may want to achieve other environmental benefits, to seek admission to MWRA.

HABITAT AND FISHERIES – OPTIONS AND ISSUES

The MWRA water system is operated with the primary objective of ensuring a high quality adequate water supply for the MWRA service area while also maintaining an adequate flood protection buffer particularly during the spring melt and hurricane seasons and maintaining

required minimum releases to the Swift and Nashua Rivers. To meet water supply and quality objectives, water releases from the reservoirs cannot mimic natural flow regimes, but MWRA and EOEEA staff are considering opportunities to enhance stream flow and ecological resources below the dam.

- Within MWRA's operations/engineering constraints, MWRA could work with EOEEA agencies to optimize additional releases to the Swift and Nashua Rivers, except during periods of declared drought (an amount of 12 mgd for both rivers combined, including the 6 mgd to the McLaughlin Fish Hatchery).
- MWRA could provide a direct piped connection to the McLaughlin State Fish Hatchery in Belchertown from the reservoir itself, supplying up to 6 mgd to the hatchery. The McLaughlin Fish Hatchery is located downstream of the Quabbin Reservoir and on the banks of the Swift River. At present, the Hatchery uses a combination of water from on-site wells, and water withdrawn directly from the Swift River. When the Quabbin Reservoir fills to capacity in the summer months, the water that spills from the top of the reservoir surface is warmer than deeper waters. Quabbin Reservoir spillway water can cause sudden rises in river temperature and severely stress the fish, particularly the youngest. A direct piped connection, taking water from the lower elevations of the Quabbin would provide a continuous reliable supply of cold water directly to the hatchery, allowing it to place their river intake and pump station on standby (and reduce energy and greenhouse emissions). The pipeline would resolve the issue of warm water spills and the threat of fish kills. The hatchery is not a consumptive use: virtually all water used at the hatchery is discharged back into the Swift River, thereby increasing flows in the Swift River.
- Enhancements in the Nashua River Basin, such as the removal of the Quinapoxet River Dam, have also been discussed. The Quinapoxet River Dam is located at the upper end of the Wachusett Reservoir, adjacent to MWRA's Oakdale Facility. Removal of the dam would open the Quinapoxet River for migration and spawning of fresh water salmon, vastly expanding their habitat region.

CLEAN ENERGY - OPTIONS AND ISSUES

Hydropower at Wachusett Dam consists of the installation of a new minimum flow turbine at Wachusett Dam's Lower gatehouse. Excess water made possible by a drop in service area demand, a potential additional 6 mgd discharge to the Nashua mentioned above, and statutorily required minimum releases provide hydropower potential that may be captured 365 days of the year. As previously reported to the Board, the Massachusetts Technology Collaborative has just awarded MWRA a \$375,000 design and construction grant for this project.

Finally, there have been some discussions regarding the redevelopment of hydropower at Winsor Dam at Quabbin Reservoir to generate clean energy and provide additional revenues to MWRA. Water from Quabbin was previously discharged to the Swift River via a hydro turbine in the Winsor Dam Powerhouse. Flows through the turbine were based on minimum releases required by the 1927 Acts of Massachusetts and a 1929 War Department Permit (now administered by the

Corps of Engineers). The 1929 permit sets releases depending upon upstream flows in the Connecticut River (from the Swift River flows into the Chicopee River which flows into the Connecticut River).² The hydroelectric facilities became inoperative in 1991 due to a fire.

Before the fire, the Federal Energy Regulatory Commission (FERC) had directed MWRA to license the facilities. In order for new or rehabilitated facilities at the Winsor Dam to be licensed under FERC, an onerous federal licensing process is required. More than ten years ago, MWRA consulted with various state and federal agencies that participate in the FERC process, as well as Trout Unlimited. Each suggested that the War Department/Corps permit be reopened. Uncertain regulatory outcomes associated with re-opening the War Department permit, once contested by the State of Connecticut, as well as the FERC process itself, could result in requirements for additional and significant releases that could hamper MWRA's ability to provide an adequate supply of high quality water. Due to this issue, MWRA staff have been reluctant to move forward with redevelopment of Winsor hydropower and have focused on other hydropower projects such as Loring Road and Wachusett Dam.

BUDGET/FISCAL IMPACTS:

The amount of revenue to MWRA (entrance fee and payment for annual water consumption) would vary by the number of communities entering and the amount of water purchased. MWRA will receive one-time entrance fee revenue of approximately \$5 million for each 1 mgd withdrawal approved for a new community. The estimated cost for the Windsor pipeline is \$2 million and is included in MWRA's FY09 CIP. No cost estimate is available for the breaching of the Quinapoxet River Dam.

² The War Department permit requires that during the period June 1 to November 30, when flows in the Connecticut River at Montague are less than 4900 cfs but more than 4650 cfs, the release from Quabbin Reservoir into the Swift must be 45 mgd. When flows fall below 4650 at Montague, the release from Quabbin into the Swift must be 71 mgd. When flows are above 4900 cfs at Montague, the 1927 Acts of Massachusetts govern; the 1927 Acts require 20 mgd at Bondsville