


## STAFF SUMMARY


**TO:** Board of Directors  
**FROM:** Frederick A. Laskey, Executive Director   
**DATE:** November 18, 2020  
**SUBJECT:** Update on the Status of Water Supply Protection Efforts


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**COMMITTEE:** Water Policy & Oversight

INFORMATION  
 VOTE

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Preparer/Title

  
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*Per the discussion at the last meeting of the Board of Directors, this informational staff summary provides a broad overview of the current status of water supply protection efforts and how various aspects of those joint responsibilities are being carried out by DCR and MWRA. It includes a review of DCR's water supply protection division staffing and an update on the various projects that the Authority is both currently undertaking and planning to undertake on behalf of the DCR.*

### RECOMMENDATION:

For information only.

### DISCUSSION:

#### Need for Watershed Protection:

All water systems rely on the quality of their source water and the type of treatment they provide in delivering safe and aesthetically acceptable water to their customers. The Environmental Protection Agency (EPA) requires that all but a select few water systems provide filtration of their source water to ensure public health. Those systems with less well-protected sources must rely on more complicated and costly types of water filtration to overcome their poorer or less stable source water quality. Systems with reasonably well protected source water may use less complex forms of filtration. Only a few systems, like MWRA, with excellent watershed protection and stable high quality source water, can and are allowed by EPA to provide only disinfection.

EPA has 11 criteria, for systems like MWRA, to avoid filtration in the Surface Water Treatment Rule. These include two related to source water quality and two on the adequacy of watershed protection. Both of the source water quality criteria, turbidity (a measure of the particles in the water) and fecal coliform concentrations, require active watershed protection efforts to stay within the prescribed limits. In particular, MWRA has experienced what can happen if efforts to prevent birds from roosting on the reservoir are ineffective, for even a few days. What seemed like minor lapses in bird harassment efforts over a few days in 1998 resulted in fecal coliform levels being

over the filtration avoidance criteria, and created the factual basis for EPA's (ultimately unsuccessful) lawsuit in federal court to require MWRA to add filtration to the Wachusett Reservoir source.

EPA's watershed protection criteria include having a protection plan that demonstrates the water system has "ownership or control of the land within the watershed...for the purpose of controlling activities which will adversely affect the microbial quality of the water" and demonstrating each year that the plan and related activities are successful. The Massachusetts Department of Environmental Protection (DEP) approved watershed protection plans include both actions to manage existing activities within the watershed, such as wastewater disposal, runoff and drainage, and other human activities, but also actions to prevent future development that could endanger the water quality. Both management of current risks and prevention of future risks are required for successful maintenance of water quality and MWRA's filtration avoidance determination.

The watershed protection plans approved by DEP to maintain MWRA's waiver of filtration, include a continuing program of land acquisition to continue the system's ability to control land development activities that could adversely affect water quality. EPA has recognized the value of ongoing efforts to protect undeveloped land over time and the benefits of protecting higher value lands rather than simply owning more land.

Over the years since the watershed protection plans were first developed and approved by DEP in 1993, the land acquisition plans (along with on-going regulatory activity under the Watershed Protection Act) have focused on the need for an ongoing commitment to preventing adverse development on critical lands. This has been accomplished through support of good local community planning; use of Watershed Protection Act (Cohen Bill); and the purchase of conservation restrictions (CRs) or land in fee simple. The DCR/MWRA approach has been to identify highest "value" critical lands and intercept them before adverse development occurs. The pace and scale of the program are linked to the ability to "stay ahead" of development which might adversely affect water quality. At Wachusett Reservoir, lands owned rose from less than eight percent in 1985 to 30 percent today, with system-wide ownership at over 47 percent. As discussed below, land acquisition is now funded directly by MWRA through its Capital Improvement Program (CIP).

DCR's watershed protection program is operated under a 5 Year Watershed Protection Plan (updated in 2018) that is approved by DEP which regulates all water supplies in the Commonwealth under federal and state rules. DEP and EPA maintain close oversight on the DCR and MWRA watershed control, intake, and treatment programs.

#### Watershed Protection Responsibility and Funding:

When the Massachusetts legislature created the MWRA in 1984, the then MDC<sup>1</sup> water system was divided into two parts. The pipes, tunnels, pumping and treatment facilities were transferred to the MWRA. Ownership and management of the watershed land, and supply reservoirs and dams was kept with the MDC. Initially MWRA was required to reimburse the Commonwealth for 50 percent of the costs of watershed protection (presumably recognizing the dual benefits of the watershed to

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<sup>1</sup> The Metropolitan District Commission was responsible for a number of regional activities, including the metropolitan water and sewer systems. Subsequently in 2003, the remaining functions of MDC and the Massachusetts Department of Environmental Management were merged into the newly created Department of Conservation and Recreation (DCR), including the responsibilities for maintaining and protecting MWRA's water supply.

both users of the water system but also for recreation and land preservation for all state residents. However, over a period of years, that was legislatively increased to first 75 percent and then 100 percent.

MDC and MWRA developed a Memorandum of Understanding that provided the practical division of responsibilities for the two agencies within the statutory framework, ranging from who cut the grass where, to which agency made certain operating and policy determinations. The MOU has been amended several times to further clarify the division of responsibility.

While the MOU was successful dividing responsibilities, the capacity of the two agencies to accomplish what needed to be done diverged. As an independent agency, MWRA evaluated the needs to the water supply system under its control and developed the capital and operating budgets, and staffing necessary to maintain and upgrade those systems. As a state agency, MDC (and then the DCR) was subject to annual legislative appropriations and hiring slowdowns and freezes despite the reimbursement from MWRA. This was a recurring frustration in accomplishing necessary watershed protection efforts, and MWRA repeatedly needed to step in to provide resources or contracts to ensure that necessary work was completed. This resulted in the MOU being amended again, in 2004, to more clearly allocate control of water related functions to MWRA and to increase fiscal accountability and oversight of the watershed function, now housed within the DCR. The MOU has provisions for MWRA to step in and directly manage any function that DCR is unable to undertake.

At the same time as the MOU was being revised in 2004, legislation was passed to create the Water Supply Protection Trust. The Trust is designed to provide a dedicated funding mechanism for watershed protection, protected from the vagaries of the state budgeting process. DCR develops an annual work plan and budget that is reviewed and coordinated with MWRA and MWRA Advisory Board staff, and approved by the five-person Water Supply Protection Trust, chaired by the MWRA Executive Director. The Trust holds quarterly meetings to oversee DWSP's program and finances.

#### Current Expense Budget Process:

Each year, MWRA prepares a Current Expense Budget (CEB) that reflects the best available information for anticipated expenditures and revenues. Within its Indirect Expense Budget, MWRA budgets for the reimbursement of the operating and major project costs of the DCR Office of Watershed Management. The DCR budget is based on the annual Fiscal Year Work Plan and associated budget approved by the Water Supply Protection Trust, with the exception that MWRA applies a vacancy adjustment to the Wages & Salaries and Fringe Benefit line items of the budget to realistically reflect the expected timing of new hires (as it does for MWRA staffing).

The annual budget process begins in the fall, with the submission of the DCR Office of Watershed Management's proposed budget typically due to MWRA in November. Typically, in February, after review by MWRA senior staff, the Watershed budget is included as an indirect expense in the Proposed CEB presented by the Budget Department to the Board of Directors Directions and to the Advisory Board for its comments and recommendations. During the spring, the DCR Office of Watershed Management typically provides revised versions of their budget based on the latest information available for incorporation in the proposed final budget.

There is no current mechanism for the DCR Office of Watershed Management to have a multi-year capital budget comparable to the MWRA's CIP and the Commonwealth has not prioritized its limited environmental bond funds for watershed functions in recent years<sup>2</sup>. Under the terms of the MOU, if DCR is unable to move a critical project forward, MWRA can take over the responsibility. MWRA has taken over a number of critical watershed maintenance activities. Land acquisition is funded directly by the MWRA with specific parcel purchases being approved by the MWRA's Board based on joint recommendations by DCR and MWRA staff. MWRA has taken complete control of inspection and maintenance of the major water supply dams, and MWRA has taken over a number of other capital projects as discussed with the Board in October 2019 and detailed below.

#### Expense Tracking, Billing, and True Ups:

MWRA reimburses the DCR for incurred expenses. The reimbursements are now presented for payment monthly in arrears. Accruals are being made monthly based on estimated expenses provided by DCR and then trueed up based on the monthly invoice. At the end of the fiscal year, an accrual is provided by DCR to the MWRA to account for any encumbrances that are expected to be paid by the Commonwealth's August 31<sup>st</sup> deadline, in order for them to be attributed to the current MWRA fiscal year. For FY2020, DCR did not provide an accrual that fully accounted for all the expected encumbrances, which led to an unanticipated balance forward of \$959,000 being carried into MWRA's FY2021 CEB.

#### MWRA and DCR Coordination:

DCR and MWRA staff created a series of committees to maintain regular communication and coordination of activities. These include:

- Reservoir Operations Group which meets quarterly to review reservoir conditions, discuss operations changes, and coordinate maintenance and construction projects;
- Water Quality Sampling and Analysis Team which generally meets quarterly in conjunction with Reservoir Operations Group to review water quality data, and laboratory and sampling processes;
- Land Acquisition Panel which meets regularly to evaluate potential land purchases and make recommendations to be forwarded to the MWRA Board of Directors; and
- DCR/MWRA Coordination meetings held every other month with DCR and MWRA managers to maintain open communication on priorities and major projects.

The MOU and Water Supply Protection Trust work plan and budget process also provide formal as well as informal opportunities for DCR and MWRA staff to jointly set program priorities and adjust them over the course of the year.

Even beyond the formal policy parameters set by the MOU, the two agencies frequently work together to efficiently manage activities across the several hundred square miles of the watershed region rather than duplicate efforts or equipment. Recent examples include MWRA making a single purchase of water quality sampling and analysis equipment for both teams, and providing maintenance of the equipment, so that both DCR and MWRA teams would be using the same

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<sup>2</sup> If the Commonwealth were to use bond funds for watershed projects, MWRA is obligated to reimburse the Commonwealth for the annual debt service costs.

equipment for consistent results under both regular and emergency conditions. DCR agreed to provide routine maintenance visits to MWRA’s new Quabbin water quality monitoring buoy, which avoids MWRA needing a boat and having to send staff all the way from Southborough to Quabbin. MWRA purchased and maintains the spill containment and response materials at the reservoirs, and provides training to DCR, MWRA and community staff each year. When there is a spill, DCR staff are frequently the first on the scene and can promptly deploy the equipment. MWRA procures the in-reservoir invasive plant species management contracts each year, and DCR assists in daily oversight and proper disposal of the removed plant materials. MWRA now provides all laboratory services for DCR’s watershed, tributary and reservoir sampling, rather than duplicating that function. The general pattern is that MWRA’s budgeting and procurement processes provide flexibility when needed, and DCR has the staff “on the ground.”

Staffing:

While the two agencies’ activities are generally well coordinated, the issue of maintaining an adequate level of staff and resources for watershed protection has been a recurring issue since the split of functions with the creation of the MWRA. A review of agency records provides some clear examples. In 1990, the original watershed protection plans required by the federal Surface Water Treatment Rule were developed under an MWRA contract (with active MDC staff involvement) because the then-MDC was unable to move quickly enough to meet the regulatory timeline. As the protection plans were being developed, MDC reported on its staff situation. The Plan called for 195 permanent full time staff and 18 seasonal employees to handle tasks during the summer: the agency had a cap of 177 and only budget for 122. Later MWRA was required to report regularly from 1993 to 2005 to DEP and EPA on watershed staffing levels under the dual-track Administrative Consent Order leading up to the decision on whether filtration would be required. In January 1999, in the midst of the federal court case, MWRA reported to DEP and EPA that MDC had only a total of 165 FTEs against the plan commitment of 181. Only by prioritizing the most critical tasks, and with MWRA providing assistance, were the two agencies able to meet all the obligations under the SWTR and the Consent Order to convince DEP and the Federal Court that MWRA did not need to construct filtration as part of the John J. Carroll Water Treatment Plant. Two years ago, DCR did a new review of staffing needs, and further reduced its planned staff from 157.3 to 150 FTEs.

Each year, the DCR work plan provides staffing levels by region and position and also includes primary responsibilities. For FY2021, there are 150 FTEs budgeted. As of October 31, 2020, DCR has 132 FTEs (with a year-to-date average of 132.5). The table shows the FTEs for the most recent three completed fiscal years, as well as the year-to-date for the current fiscal year. MWRA budgets on the assumption that all positions can be filled, and applies a normal vacancy rate to account for the normal delay in posting and filling positions.

<b>Fiscal Year</b>	<b>Actual</b>	<b>Budget</b>	<b>Variance</b>
FY18	139.5	157.3	(17.8)
FY19	136.0	157.3	(21.3)
FY20	135.7	150.0	(14.3)
FY21	132.5	150.0	(17.5)

Due to the fact that the Executive Office of Administration and Finance (A&F) has included the DCR Office of Watershed Management within the state-wide hiring freeze, DCR has been unable to post any of the 19 positions currently vacant, despite the Water Supply Protection Trust having approved a budget for 150 FTEs. In the first week in November, DCR and MWRA received the good news that DCR had received permission from A&F to post eight of the 19 positions, as indicated by an asterisk in the table below.

DCR Water Supply Protection Staff Vacancies as of October 31, 2020

<b>Quabbin/Ware Section</b>	<b>Wachusett/Sudbury Section</b>
Aquatic Biologist (AB) II *	Forest and Park Supervisor II
Forest and Park Supervisor III *	Ranger I *
Program Coordinator III	Maintenance Equipment Operator (MEO) I *
Ranger I *	Civil Engineer II
Maintenance Equipment Operator (MEO) II *	Laborer II *
Environmental Analyst I *	Laborer II
Office Support Specialist	Laborer II
Carpenter II	<b>Natural Resources Section</b>
Laborer II	Environmental Analyst IV (Land Acquisition Coordinator)
Laborer II	<b>Finance Section</b>
	Management Analyst II

\* - Positions Marked with an \* were authorized for posting as of November 3, 2020.

DCR has been diligent in assessing the priority of the responsibilities of each of the vacant positions, and reassigning the most critical functions to other staff. This, of course, results in lower priority work of both positions not being completed.

The deferral of certain tasks, such as road maintenance, for a time will result in further deterioration and a greater cost later. Deferring water quality or storm sampling in tributaries will result in data gaps that cannot be filled later. Reducing the inspection and maintenance of gates, fencing and signage, may result in security lapses going unnoticed longer than necessary. Unfilled supervisors positions frequently results in less efficient use of staff as fewer crews can be mobilized. A necessary focus on short-term priority action has meant that longer-term priorities such as climate action planning are being deferred. The retired land acquisition coordinator agreed to serve as a temporary part time contract employee for the purposes of providing continuity and guiding succession planning. Not filling the vacancy to date has reduced the opportunity for overlap and risks crippling that critical long-term watershed protection function. Having two of the 16 ranger staff positions vacant has resulted in less coverage on both the reservoirs and the watershed lands, even though the use of the watershed has increased during the pandemic with many new visitors not familiar with the rules and restrictions designed to protect water quality.

A summary of the responsibilities of each of the vacant positions, how DCR has prioritized getting their critical functions accomplished, and what was not being accomplished due to the prolonged vacancies was requested by the Water Supply Protection Trust at their most recent meeting. A copy of DCR's response is attached.

Current Major Projects Funded and Managed by MWRA:

As discussed above and detailed in a Staff Summary and presentation at the October 2019 Board meeting, MWRA has taken over responsibility for advancing a number of major projects that DCR is unable to accomplish. DCR is in need of upgrades to several buildings and facilities at the Wachusett and Quabbin Reservoirs that are functionally obsolete and structurally deficient. MWRA staff continue to work on these projects. The current year CIP and CEB have sufficient amounts budgeted for most of these projects. The replacement of the New Salem buildings that were destroyed by a fire in April 2018 and the Quabbin Administration Building replacement well are not yet fully scoped or budgeted.



*Quabbin Administration Building*

<b>Current DCR Major Projects</b>		
<b>Project</b>	<b>Design and Construction Budget</b>	<b>Status</b>
Quabbin Administration Building	\$15 million	MWRA will procure a designer to conduct a study of the rehabilitation of the 1930's facility. The study will be submitted to DCAMM for review and certification. Once certified by DCAMM, the study will serve as a basis in the preparation of the project's Final Design. The expected start date for the facility study is June 2021.
Quabbin Admin Building Well	TBD	DCR is under a DEP Administrative Consent Order to resolve deficiencies in the existing well. Design of the replacement well and connecting pipeline will be done under an MWRA task order contract, with an anticipated start date in late November. Construction cost not yet determined.
Quabbin Maintenance Building	\$4.9 million	The MWRA has completed the DCAMM Designer Selection Board process and negotiations with the first ranked firm for the design of this building and garage. The staff summary for the award of this project to Robinson Green Berretta Corporation (RBG) will be presented at the November 18, 2020 Board of Director's meeting.
River Road Reconstruction	\$3.2 million construction	The slope supporting and abutting the road that provides access to the bottom of the Wachusett Dam and Power House has failed. This project to reinforce the slope and rebuild the road is out to bid with an expected award in January 2021.
Quinapoxet Dam Removal	Design - \$425 thousand Construction - \$1.2 million*	Design awarded in April 2020. Construction currently scheduled to begin mid 2021.
Sudbury/Foss Dam Repairs	\$2 million	Construction award anticipated July 2021
New Salem Building Replacement	TBD	Initial plans to purchase modular buildings proved more costly than budgeted causing DCR to study new construction options.

Quabbin Park Cemetery Buildings Demolition and Hazardous Materials Abatement	\$105 thousand	This project was awarded to Associated Building Wreckers with a Notice to Proceed date of November 4, 2020.
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\* Preliminary estimate. Construction timeframe dependent on MWRA-DER grant funding success and schedule.

DCR/MWRA Partnership for High Quality Water:

As discussed above, DCR and MWRA have worked together well since the creation of the MWRA over 35 years ago, despite the split in responsibilities and differing budgetary frameworks. The work that has needed to get done, has gotten done, due to the professionalism of staff at both agencies and their dedication to our shared mission of providing the best quality water to our 2.5 million customers. The watersheds are better protected and the supply and treatment infrastructure in better shape now than it was in 1985. Both agencies continue to prioritize the most critical tasks, and strive to avoid creating longer-term problems when deferring what are, in the moment, lower priority projects. The current staffing issue is one that the Water Supply Protection Trust was supposed to prevent. Working with the Advisory Board, and the Water Supply Protection Trust, MWRA staff continue to advocate for the Commonwealth to allow DCR to use the resources that MWRA and the Trust have determined to be necessary and have approved.

**ATTACHMENT:**

DCR Memorandum to Water Supply Protection Trust, October 30, 2020