

Resources for Water Supply and Water Management Act (WMA) Permit Planning

Information and Data

MassDEP Sustainable Water Management Initiative (SWMI) Website

Objective: Information on and data used in the development of the revised WMA

Description: Several resources are available. 1) SWMI Interactive GIS Map displays major basins, subbasins, withdrawal and discharge points, biological and groundwater withdrawal categories and net groundwater depletion. 2) WMA Permitting Tool contains data for all towns and subbasins relevant for permit renewal (e.g., withdrawals and return flows for calculating net depletion, impact categories, baseline withdrawal, recent withdrawals). Permittee-specific data are provided to each permittee by MassDEP at initial outreach meetings in a summary sheet. 3) Reports and data from various agencies that were used to develop the data in WMA Permitting Tool and the revised regulations (e.g., U.S. Geologic Survey, MassDEP, MA Division of Fisheries and Wildlife, SWMI pilot studies).

Availability: <http://www.mass.gov/eea/agencies/massdep/water/watersheds/sustainable-water-management-initiative-swmi.html>

MassGIS

Objective: Quick and free source of data for analyses (e.g., soil types, land use/land cover, Zone II delineations)

Description: A comprehensive, statewide database of spatial information for mapping and analysis supporting emergency response, environmental planning and management, transportation planning, economic development, and transparency in state government operations.

Availability: <http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/>

Tools and Methods

EPA's Watershed Management Optimization Support Tool (WMOST)

Objective: Evaluate which actions meet WMA requirements at least cost

Description: WMOST determines the least-cost combination of management actions that will meet projected water needs, wastewater needs and WMA minimization and mitigation requirements to protect streamflow and ecological health. WMOST is uniquely capable of determining cost-effective actions to meet management goals related to water supply, wastewater, stormwater and land use. Optimization is performed on each subbasin while accounting for water and wastewater systems that connect across subbasins. The models also provide the capability to for future adaptive management (e.g., at five-year permit reviews).

Availability: WMOST, documentation and example model applications are available at <http://www2.epa.gov/exposure-assessment-models/wmost-10-download-page>. The application of WMOST for meeting WMA requirements is described in the 2014 SWMI report for the Little Water Department and in two forthcoming 2015 SWMI reports for Wrentham and Westborough. These SWMI reports and tools are available

from MassDEP on request and will be available July 2015 at www.abtassoc.com/WMA. The Wrentham report will also be available from www.charlesriver.org. The Westborough report will also be available at <http://www.oars3rivers.org/>.

Stormwater Calculator

Objective: Calculate potential recharge credits and associated costs

Description: Users can calculate applicable credits since 2005 and plan for future credits. The credit methodology is based on that used in previously granted permit under the new WMA regulations. Cost calculations will account for soil type and different levels of recharge credit. Default input data will be provided and their sources documented; however, users can also enter their own data. Unlike some stormwater models, the tool will be both freely available and easier to use by being specific to Massachusetts communities and WMA planning.

Availability: July 2015, the tool with user manual and methodology will be available from MassDEP, www.abtassoc.com/WMA and www.charlesriver.org as part of the 2015 SWMI Report for Wrentham.

Conservation Calculator

Objective: Estimate potential reductions in demand and associated costs

Description: Considerations in the calculations include number of existing demand volume and characteristics, expected uptake rates for various practices, lifetime of practices, percent rebate or other incentive offered, average annual gallons per day savings, and annualized implementation cost for the town over the planning period.

Default data on the cost and effectiveness of practices will be included and their sources documented (e.g., New England Water Works BMP toolbox, EPA WaterSense program, commercial demand management software). Users will be able to change default data and enter their own based on available, local data. Unlike commercial products, the tool will be freely available and easier to use by being specific to Massachusetts communities and WMA planning.

Availability: July 2015, the tool with user manual and methodology will be available from MassDEP, www.abtassoc.com/WMA and www.charlesriver.org as part of the 2015 SWMI Report for Wrentham.

StrmDepl - Well withdrawal optimization

Objective: Evaluate pumping strategies to minimize late summer impact on streamflows based on well and aquifer characteristics

Description: This method is applicable if one or more wells are located at a sufficient distance from the stream as to produce a delayed impact on streamflow and/or has poor hydraulic connection with the stream. The U.S. Geological Survey's StrmDepl model is used to determine the lag time between withdrawals and impact on streamflow. Wells with delayed impact can be used for the increased summer demand while wells with quicker impact can be used more in the winter without affecting total withdrawals.

Availability: StrmDepl is available at <http://mi.water.usgs.gov/software/groundwater/strmdepl08/>. The application of the method and tool for WMA considerations is described in the 2014 SWMI funded report titled "Regional Evaluation of Water Management Alternatives to Reduce Streamflow Impacts in the Upper Charles River Watershed" and available from MassDEP.