"Legal Authority" and "Funding Sources Assessment" in support of the Small Municipal Separate Storm Sewer System (MS4) General Permit "Lake Phosphorus Control Plan (LPCP)" Requirement for Lakes and Ponds in the French River Watershed

TO: Town of Oxford, MA

FROM: Janet Moonan, PE, and Kristin Dippold, Project Planner, Tighe & Bond

DATE: November 16, 2020

Tighe & Bond is providing this memorandum to the Town of Oxford to document compliance with requirements related to the reduction of phosphorus to certain waterbodies in Town per the U.S Environmental Protection Agency's (EPA's) *General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems* (MS4GP), specifically, Appendix F Part A.II of the MS4GP. The Town of Oxford is subject to the Lake and Pond Phosphorus TMDL Requirements for waterbodies in the French River watershed in Oxford and therefore must develop and implement a Lake Phosphorous Control Plan (LPCP) per the MS4GP.

EPA's Lake and Pond Phosphorus Reduction Requirements

Between 1999 and 2010, EPA has approved 13 Lake Total Maximum Daily Loads (TMDLs) (a.k.a. "pollution budget") completed by the Massachusetts Department of Environmental Protection (MassDEP) covering 78 lakes and ponds within the Commonwealth of Massachusetts. Any permittee that discharges to a waterbody segment in Appendix F Table F-6 of the MS4GP, including the Town of Oxford, is subject to the Lake and Pond Phosphorus TMDL Requirements.

Almost the entirety of the Town of Oxford's MS4 discharges to the French River Watershed. The area of the French River watershed is 71,737 acres (17% in CT, 83% in MA). The French River begins in Leicester, MA and flows into the Quinebaug River below the West Thompson Lake Dam in Thompson, CT. Figure 1 shows the overall French River watershed relative to Oxford's municipal boundaries.

One of the 13 TMDLs is to manage the pollutant phosphorus and applies to select waterbodies (lakes and ponds) in the French River Watershed, including six waterbodies in Oxford. This TMDL[1] was approved in May 2002.

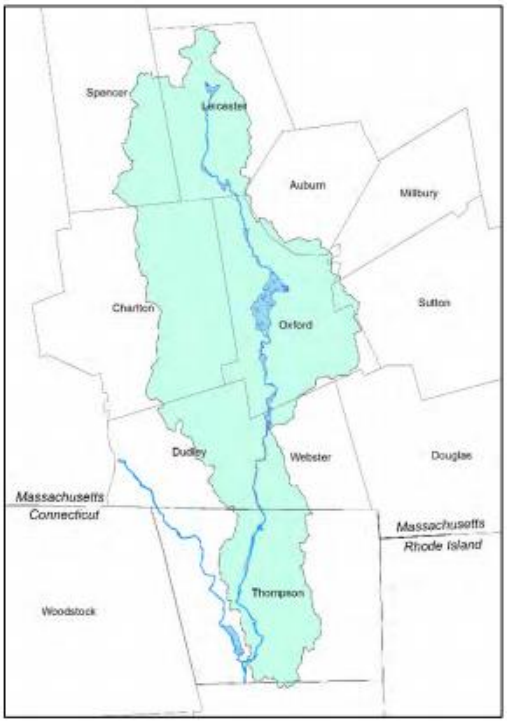


Figure 1. The French River watershed in Massachusetts and Connecticut

[1] https://www.mass.gov/doc/final-tmdls-of-phosphorus-for-selected-french-basin-lakes/download

Phosphorus is a nutrient that, when present at high levels in natural waterbodies, can cause overgrowth of aquatic plants, increase harmful algal blooms, decrease light in a waterbody, and decrease levels of dissolved oxygen, thereby impairing designated uses (aquatic life, fish consumption, primary and secondary contact, and aesthetics) per the Commonwealth's Surface Water Quality Standards (314 CMR 4.00). Phosphorus is a common pollutant in stormwater, with sources including leaf litter, pet waste, road salt, fertilizer, and atmospheric deposition. A variety of structural (infiltration and treatment structures) and non-structural (such as street sweeping and catch basin cleaning) Best Management Practices (BMPs) can be effective at reducing phosphorus loads from stormwater.

In order to address the phosphorus reductions, the MS4GP requires Oxford to develop the previously mentioned LPCP and fully implement all control measures identified in that Plan as soon as possible but no later than June 30, 2033 (15 years from effective date of MS4GP). The LPCP includes the elements presented in Table 1.

TABLE 1
LPCP Deadlines and Components

Deadline	Component
June 30, 2020	Legal analysis
June 30, 2021	Funding source assessment
June 30, 2022	Define LPCP scope/area and calculate baseline phosphorus, allowable phosphorus load, and phosphorus reduction requirement
June 30, 2023	Describe planned nonstructural and structural controls, operation & maintenance (O&M) program, implementation schedule, costs, funding sources assessment (update), and prepare a fully written LPCP
June 30, 2024	Fully initiate non-structural controls and evaluate performance, begin iterative implementation and evaluation process [1]
June 30, 2033	Achieve required phosphorus reduction

Notes
[1] The MS4GP assumes phosphorus will first be addressed with non-structural controls (street sweeping, catch basin cleaning, and enhanced leaf litter pickup), assessing performance of those controls, and then adding structural controls (such as retention systems, swales, pollution control boxes) and assessing overall performance every two years to iteratively achieve reduction requirements.

The phosphorus reduction requirements for each waterbody in the Town of Oxford are listed in Table 2. **While percent reduction may not seem concerning at a first glance, these values translate into actual annual pounds per year of phosphorus necessary to reduce, and therefore have an associated dollar value, which, depending on the loading in the watershed, can add up to many hundreds of thousands of dollars.**

TABLE 2
MS4GP Required Phosphorus Reductions for the Town of Oxford

Waterbody Name	Required Percent Reduction	Waterbody Name	Required Percent Reduction
Buffumville Lake	28%	McKinstry Pond	79%
Hudson Pond	37%	Robinson Pond	8%
Lowes Pond	51%	Texas Pond	21%

Water Quality in the Town of Oxford's Lakes and Ponds Subject to the Phosphorus Requirements of the MS4GP

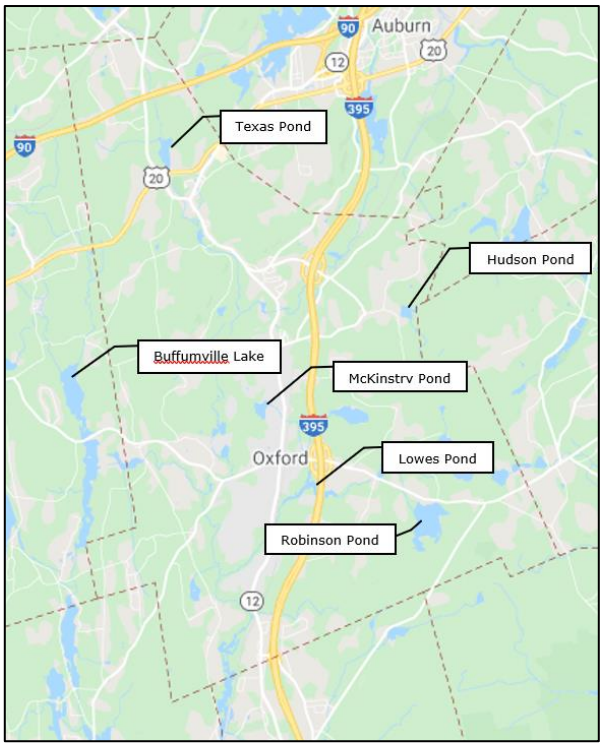


Figure 2. Location of ponds and lakes within the Town of Oxford covered by the TMDL for Phosphorus for Selected French Basin Lakes

The May 2002 TMDL for Phosphorus for Selected French Basin Lakes includes Hudson Pond, Lowes Pond, McKinstry Pond, Robinson Pond, and Texas Pond in Oxford and Buffumville Lake in Charlton/Oxford, along with other waterbodies located in Leicester, Charlton, Dutton, Dudley, and Spencer. Figure 2 shows the location of the identified lakes and ponds in Oxford. Hudson Pond and its entire watershed is not located within the MS4 Regulated Area[2], nor do any Town MS4 outfalls discharge to it, and therefore it is not subject to the MS4GP requirements.

These waterbodies were included in the TMDL because they were identified in the Final Massachusetts 1998 Integrated List of Waters ("List") as being impaired by a variety of pollutants and stressors including low dissolved oxygen, turbidity, nutrients, and an over-abundance of nuisance aquatic plants. These pollutants and stressors are indicators of nutrient-enriched systems becoming eutrophied, which, in freshwater systems, is caused by phosphorus. Inclusion in the 1998 List was based on very limited data collected by MassDEP only in summer of 1994. The intent of the TMDL is to prevent further degradation in water quality and to ensure that each waterbody meets state water quality standards by establishing a phosphorus limit and outlining corrective actions to achieve that goal. However, it should be noted that many TMDLs developed in the early 2000s rely on extremely limited field data collected over a short duration and on theoretical modeling that is based on contributing land use, and may not reflect actual in-waterbody conditions or loading to the lake or pond.

Since approval of the TMDL in May 2002, assessment of water quality in the lakes and ponds has been re-evaluated and updated by MassDEP as part of the Integrated List of Waters process, which occurs every two years. Correspondence with NPDES permit writers at EPA Region 1 indicates that an update to the Integrated List of Waters, which may remove an impairment covered by the TMDL, does not supersede a TMDL and a state can only change a TMDL by updating or withdrawing it. Each community remains subject to that TMDL and the MS4GP permit conditions until the applicable TMDL is updated by the Commonwealth. **Because of the potentially high costs associating with planning and implementing the LPCP, Tighe & Bond reviewed the current water quality standards that apply to the Town of Oxford's waterbodies subject to the TMDL and found there are some waterbodies to which the TMDL no longer should apply. The following explains the basis for that evaluation and provides a recommendation for the Town of Oxford to potentially reduce its overall compliance burden.**

[2] https://www3.epa.gov/region1/npdes/stormwater/ma/ram/oxford.pdf

Table 3 below lists the waterbodies within the Town of Oxford subject to the May 2002 TMDL and associated status per the most recent (Final) Integrated List of Waters ("List"), which was dated 2016 and approved by EPA in January 2020. Applicable excerpts from the 2008, 2010, 2012, 2014, and 2016 Lists are enclosed with this memorandum.

TABLE 3
Status of waterbodies in Town of Oxford Previously Subject to Phosphorus TMDL

Waterbody (Segment ID)	Category	Current Pollutant (2016 Integrated List)	TMDL for Phosphorus still Applies? (Y/N)	Comments
Buffumville Lake (MA42005)	4a (TMDL completed)[1]	Non-Native Aquatic Plants * [2]	No	According to Appendix 3 of the 2016 List, applicable water quality standards (WQS) are attained (reason for recovery was unspecified). Therefore, the "excess algal growth" impairment is removed from categories 4 or 5 of the List.
Hudson Pond (MA42029)	4a (TMDL completed)	Aquatic Plants (Macrophytes)* [2] Nutrient/Eutrophication Biological Indicators	Yes	Hudson Pond is not within the MS4 Regulated Area and therefore the TMDL does not have to be addressed through the MS4GP at this time.
Lowes Pond (MA42034)	4a (TMDL completed)	Nutrient/Eutrophication Biological Indicators	Yes	
McKinstry Pond (MA42035)	4a (TMDL completed)	Nutrient/Eutrophication Biological Indicators	Yes	
Robinson Pond (MA42047)	3 (no uses assessed)	None listed	No	In the 2010 List, this waterbody was delisted from Category 4a (TMDL completed) to Category 2 Water (Attaining some uses; other uses not assessed). In the 2016 List, this waterbody was adjusted to be Category 3 (no uses assessed). No reasoning is provided.
Texas Pond (MA42058) [2]	5 (The 303(d) List – "Waters requiring a TMDL")	Mercury in Fish Tissue	No	In the 2010 List, segment was moved to be included as part of French River (segment MA42-03). According to Appendix 3 of the 2016 List, applicable WQS are attained (according to new assessment method and due to restoration activities), and therefore, the "aquatic plants (macrophytes)" impairment covered by the TMDL (2357), along with total phosphorus and turbidity, are all is removed as being listed under Categories 4 or 5 of the List.

Table notes:
[1] State-wide Mercury in Fish Tissue TMDL 33880 still applies. The Northeast Regional Mercury TMDL does not specify a wasteload allocation or other requirements either individually or categorically for the MS4 discharges and specifies that load reductions are to be achieved through reduction in atmospheric deposition sources. No requirements related to this TMDL are imposed on MS4 discharges under this part. However, if the permittee becomes aware, or EPA or MassDEP determines, that an MS4 discharge is causing or contributing to such impairment to an extent that cannot be explained by atmospheric deposition (e.g. chemical spill, acid landfill leachate or other sources), the permittee shall comply with the requirements of part 2.1.1.d and 2.3.4 of the permit.
[2] *impairment does not require a TMDL because this is considered a non-pollutant.

Given the recent change in impaired waterbody status that delists Buffumville Lake, Robinson Pond, and Texas Pond from being subject to the May 2002 TMDL for Phosphorus for Selected French Basin Lakes, advice from EPA, and the substantial planning, capital, operational, and administrative costs associating with preparing and undertaking the LPCP, we recommend the Town of Oxford engage Town Counsel to prepare a persuasive letter to MassDEP to request an update to the TMDL to remove Buffumville Lake, Robinson Pond, and Texas Pond. The Town may wish to coordinate this effort with the Town of Charlton Town Administrator and legal counsel.

LCPC "Legal Analysis"

Achieving the phosphorus reduction required by EPA for each waterbody subject to the MS4GP LPCP requirements (see Table 2) is not only expensive for a community but cannot always be achieved on public land alone. Because of this, it is in the Town's best interest to utilize opportunities presented through new development and redevelopment to offset the Town's effort associated with planning and implementing the LPCP.

Requirements

According to Appendix F, as part of developing and implementing a LPCP designed to reduce the amount of phosphorus in stormwater discharges from the MS4 to identified water bodies and its tributaries, Oxford must conduct an analysis of local legal authority that may be necessary to effectively implement the entire LPCP (termed by EPA as a "legal analysis"). A description of the Phase 1 PCP Legal Analysis, as stated in the MS4GP, reads as follows:

> *The permittee shall develop and implement an analysis that identifies existing regulatory mechanisms available to the MS4 such as by-laws and ordinances and describes any changes to these regulatory mechanisms that may be necessary to effectively implement the LPCP. This may include the creation or amendment of financial and regulatory authorities. The permittee shall adopt necessary regulatory changes by the end of the permit term.*

Tighe & Bond has prepared the LPCP "Legal Analysis" to identify existing regulatory mechanisms available to the Town (e.g., bylaws, regulations, and guidance) and any changes to regulatory mechanisms that may be necessary to effectively implement the entire LPCP. The following includes an analysis of available non-structural[3], structural[4], and semi-structural[5] phosphorus reduction actions; current legal authority of the Town to implement those actions on both public and private property; and future changes that would be required to fully implement the LPCP.

[3] Per EPA, non-structural BMPs consist of street sweeping, catch basin cleaning, and an enhanced Organic Waste and Leaf Litter Collection program.

[4] Per EPA, structural BMPs consist of infiltration trenches, infiltration basins or other surface infiltration practices, bio-filtration practices, gravel wetland systems, porous pavement, wet pond or wet detention basins, dry pond or detention basins, and dry water quality swale/grass swales.

[5] Per EPA, semi-structural BMPs include impervious area disconnection through storage (e.g., rain barrels, cisterns, etc.), impervious area disconnection, conversion of impervious area to permeable pervious area, and soil amendments to enhance permeability of pervious areas.

Overview of the Town of Oxford Legal Authority Related to Phosphorus Controls

Tighe & Bond's has reviewed the following publicly available documents:

- Town of Oxford General By-Laws (June 12, 2018), with particular focus on Chapter 23 (Conservation Commission), Chapter 31 (Streets and Sidewalks), Chapter 35 (Barriers and Excavation), Chapter 65 (Discharges to the Municipal Storm Drain System), Chapter 66 (Stormwater Management and Land Disturbance), and Chapter 67 (Stormwater Management Requirements);
- Town of Oxford Zoning By-Law (May 1, 2019);
- Town of Oxford Chapter 67 – Stormwater Management Requirements Applicability Rule (February 1, 2016);
- Rules and Regulations Governing the Subdivision of Land in the Town of Oxford, Massachusetts (received May 21, 2015 by the Office of the Town Clerk);
- Town of Oxford Conservation Commission website with particular focus on Plan Requirements (July 23, 2020), Notice of Intent Filing Instructions, and Downloadable Forms (including Applications and Policies);
- Town of Oxford Zoning Board of Appeals website including downloadable forms; and
- Town of Oxford Planning Board website including downloadable forms.

We will note that the Town of Oxford enforces the Commonwealth's standards for wetlands protection and therefore does not have a local Wetlands By-law or Town-specific Wetlands Regulations. In addition, Chapter 65 (Discharges to the Municipal Storm Drain System), Chapter 66 (Stormwater Management and Land Disturbance), and Chapter 67 (Stormwater Management Requirements) are all-inclusive of language that would typically be either in the bylaw or in separate regulations and therefore there are not supporting regulations, only guidance and forms.

The documents and resources listed above show that the Town has the authority further described in the following sections. Note that the following evaluation is meant to be a general overview and may not account for every possible scenario that could occur.

Legal Authority to Implement the LPCP on Public Property

Current Authority

The Town of Oxford has authority to undertake all non-structural controls on public property on an ongoing basis, and construct and maintain structural and semi-structural BMPs, because the Town collectively owns the land. Public property consists of Town owned or operated parcels including parking lots, as well as municipal roadways and the right of way. Oxford can complete street sweeping, catch basin cleaning, and, enhanced Organic Waste and Leaf Litter Collection program, on an annual or more frequent basis (which is required for phosphorus credit), both now and in the future. Oxford has legal authority to install structural or semi-structural BMPs on Town-owned lands and to maintain those BMPs on an ongoing basis.

Changes Needed

There are no legal changes necessary to implement the LPCP on public property. However, requiring all public new and redevelopment projects to implement structural BMPs, beyond those required by current local code, necessitates buy-in from elected and appointed officials for the overall approach and municipal staff (as various departments, boards, and committees may have decision-making control over specific parcels), along with planning for these efforts in capital and operational budgets.

Legal Authority to Implement the LPCP on Private Property

Current Authority

Considerations are organized by type of BMP:

- Enhanced sweeping: Oxford has no authority to physically sweep on private individual properties. Ongoing/annual sweeping completed by a private entity on a private property would typically only be associated with a porous pavement/pavers type BMP, and can only be required and enforced by the Town for projects that undergo permitting through the Commonwealth's Wetlands Protection Act and obtain an Order of Conditions (per Chapter 23 of the General By-laws) or through Chapter 67 (Stormwater Management Requirements) of the Town's General By-Laws and violate the submitted Operation & Maintenance (O&M) Plan.[6]

- Catch Basin Cleaning: Annual/ongoing catch basin cleaning completed by a private entity on a private property can only be required and enforced by the Town for new projects that undergo permitting through the Commonwealth's Wetlands Protection Act and obtain an Order of Conditions (per Chapter 23 of the General By-laws) or through Chapter 67 (Stormwater Management Requirements) of the Town's General By-Laws. Catch basin cleaning O&M would only likely apply to new/replaced structures, not existing structures.[6]

- Organic Waste and Leaf Litter Collection program: Oxford has no existing authority to require this work on private property; further, the Town has no control over the method of disposal on private individual properties. While Oxford does have the Rocky Hill Road Yard Waste Drop-Off Facility, per requirements in Appendix F of the MS4GP, to obtain a credit for an enhanced collection program, all landscaping wastes, organic debris, and leaf litter must be gathered and removed from impervious roadways and parking lots at least once per week during the period of September 1 to December 1 of each year.

- Structural and Semi-Structural BMPs: Installation and O&M of structural and semi-structural BMPs on private properties is currently only applicable to new and redevelopment projects that are subject to the Town of Oxford General By-Laws Chapter 67 (Stormwater Management Requirements) or the Commonwealth's Wetlands Protection Act and Regulations (310 CMR 10.00). The local Stormwater Management Requirements bylaw applies to all projects 10,000 square feet or greater, which is far more stringent than EPA's minimum threshold of one or more acres of disturbance (or a common plan of development that ultimately disturbs this amount

[6] Monitoring compliance with an O&M plan is challenging, however, should a violation be found, the Town does have enforcement authority through local code referenced above. In addition, if the Town identified a private site that had previously obtained a local permit and was subject to an O&M plan, and is contributing a pollutant to the MS4 (note that sediment and sand are pollutants), there is also enforcement authority under Chapter 65 (Discharges to the Municipal Storm Drain System).

of area). The Commonwealth's Wetlands Protection Act and Regulations have specific jurisdiction un-related to disturbance area. **Currently, it is impossible under local code for the Town to require a completed new or redevelopment project to retrofit the drainage system to add structural and/or semi-structural BMPs.** Note that EPA considers rain barrels to be a semi-structural BMP that reduces phosphorus loading. Oxford does have a Community Rain Barrel Program. Currently, residents can purchase a 55-gallon barrel for $69. Fifty barrels were sold in 2019 and thirty barrels were sold in 2020. The limited phosphorus reduction achieved by these structures does not outweigh the burden associated with tracking pollutant reductions. At this time, we do not recommend the Town proceed with modifications to the Community Rain Barrel Program.

Changes Needed & Considerations

To fully implement the LPCP on private property, there would need to be significant changes to local code and/or state and federal permitting. The following offers recommendations to consider:

1. Chapter 67 of the Town's General By-Laws could be updated to specify enhanced requirements for phosphorus/nutrient reduction. Other pollutants of concern should be included, as well, for overall compliance with the MS4GP. Based on our review of the local code, we recommend a holistic update to Chapter 66 (Stormwater Management and Land Disturbance) and Chapter 67 (Stormwater Management Requirements), that generally consists of consolidation of the two chapters into one, clarifications to applicability, additions and updates to the definitions, and reduction in overall text by developing Stormwater Management Regulations that can be more easily updated as standards change.

2. Because projects "wholly within jurisdiction of the Conservation Commission and requiring an Order of Conditions" are exempt from Chapter 67, consider developing Town-specific wetlands protection regulations that also specify enhanced requirements for phosphorus/nutrient reduction. Other pollutants of concern should be included, as well, for overall compliance with the MS4GP.

3. Changes to roadway width, parking, and other related requirements in zoning and subdivision that result in creation of impervious cover should be assessed. The MS4GP requires an evaluation of these requirements be completed in Permit Year 4 (FY22). Nutrients, and other pollutants of concern, should be considered during this process.

4. Phosphorus reduction credits for enhanced sweeping (1 to 10% depending on sweeper type and frequency), catch basin cleaning (2%), and enhanced organic waste and leaf litter collection (5%) are limited and may not, politically, be worth pushing on to private properties, due to high costs of the actions compared to low value in a credit system set by EPA and administrative burden associated with monitoring compliance.

5. If the Town were to pursue a Stormwater Utility and set up an Enterprise Fund, private sites can be incentivized to take their own actions to reduce pollutants through a credit system.

6. Politically, it will be very challenging if not impossible to require private properties to retrofit a site without some form of construction otherwise occurring. EPA Region 1

has been petitioned to take Residual Designation Authority (RDA)[7] of various watersheds. Oxford can consider supporting a RDA petition, if desired, for the French River watershed. However, elected officials and decision makers should carefully consider balancing Town needs to reduce phosphorus with the rights of private landowners and the Town's overall economy.

LPCP "Funding Source Assessment"

Requirements

According to Appendix F, as part of developing and implementing a LPCP designed to reduce the amount of phosphorus in stormwater discharges from the MS4 to identified water bodies and its tributaries, Oxford must conduct a funding source assessment that may be necessary to effectively implement the entire LPCP (termed by EPA as a "legal analysis"). A description of the Phase 1 PCP Funding Source Assessment, as stated in the MS4GP, reads as follows:

> *The permittee shall describe known and anticipated funding mechanisms (e.g. general funding, enterprise funding, stormwater utilities) that will be used to fund PCP implementation. The permittee shall describe the steps it will take to implement its funding plan. This may include but is not limited to conceptual development, outreach to affected parties, and development of legal authorities.*

Municipalities across the country employ a number of methods to fund stormwater programs, including the community's general fund, fees, fines, or service charges. Funds can also be in the form of non-cash resources (e.g., available educational materials or volunteers), one-time cash resources (e.g., grants, loans, bonds), or can be in the form of ongoing revenue (e.g., general fund from property taxes, user fees from a utility).

Current Funding Sources

Currently, the Town of Oxford funds stormwater management through property taxes paid into the General Fund.

[7] EPA and the authorized states regulate stormwater discharges from regulated (urbanized) municipal separate storm sewer systems (MS4s), industrial activities, and construction sites under section 402(p) of the Clean Water Act. EPA can use its "residual designation" authority under 40 CFR 122.26(a)(9)(i)(C) and (D) to require NPDES permits for other stormwater discharges or category of discharges on a case-by-case basis when it determines that:

- the discharges contribute to a violation of water quality standards,
- are a significant contributor of pollutant to federally protected surface waters, or
- controls are needed for the discharge based on wasteload allocations that are part of "total maximum daily loads" (TMDLs) that address the pollutant(s) of concern.

EPA can designate small MS4s that are not already required to have NPDES permit coverage under 40 CFR 123.35(b). In addition, designation can be requested by petition.

Potential Funding Sources

Alternatives to existing funding sources consist of:

- Massachusetts Municipal Water Infrastructure Investment Fund
- Stormwater Enterprise Fund
- Loans and grants

These sources are further described in the following sections.

Massachusetts Municipal Water Infrastructure Investment Fund[8]: The August 2014 updates to Massachusetts General Law (MGL) Chapter 259, titled "An Act Improving Drinking Water and Wastewater Infrastructure," have created an opportunity for cities and towns to adopt a significant new revenue stream for municipal funding of drinking water, wastewater, and stormwater infrastructure planning, operations, and improvements. This legislation creates an alternative to traditional funding methods that is similar to the Community Preservation Act of 2000. Essentially, communities are now allowed to adopt the law and then impose a surcharge on real property at a rate up to 3% of the real estate tax levy against real property.

To establish the Fund and collect money from the surcharge, a municipality must follow the two-step process to adopt the state law:

- Step 1: The Town's legislative body must vote by a majority to accept the statute and designate the surcharge percentage (from over 0% to 3%).
- Step 2: Voters must vote to accept the law at the next regular municipal or state election.

If approved, the Fund can be in effect (and the surcharge will be imposed) on July 1 of the next fiscal year, or a later fiscal year as the Town may designate. Note that a community may revoke acceptance of the fund or amend the amount of the surcharge with the same public process.

The money collected must be deposited in a separate account called a Municipal Water Infrastructure Investment Fund, and expenditures must be used exclusively for maintenance, improvements, and investments to municipal drinking, wastewater and stormwater infrastructure assets.

There are some benefits and drawbacks to adopting this method. Funds can be used for water and sewer infrastructure as well, and therefore may provide an opportunity to support other town-wide needed services without rate increases in years stormwater management is less costly. As with the CPA, revenues collected through the surcharge are not counted for the purpose of establishing the limit on local tax levy imposed by Proposition 2 ½. However, the funds will not capture properties that are tax-exempt but may have large impervious

[8] More detailed information about the Municipal Water Infrastructure Investment Fund from the Massachusetts Department of Revenue online at:

https://www.mass.gov/files/documents/2016/08/wn/igr16-102.pdf

areas (e.g., schools, churches, medical facilities). In addition, there will be a large range in fees for residential parcels, as there is a range in assessed values, which may be perceived as uneven by many residents. Finally, this Fund is intended for planned capital expenditures, not the day-to-day cost to administer the stormwater program such as Town staff labor, training programs, public outreach, and other MS4GP compliance activities and reporting.

Stormwater Enterprise Fund: A Stormwater Enterprise Fund is similar to the funding mechanism for both water and sewer utilities, in that it creates a fund and provides a dedicated and stable source to finance local services by generating revenue through user fees. However, unlike water and sewer utilities where flow can be metered, stormwater runoff cannot be directly measured and therefore is typically estimated using impervious area as a surrogate measurement for flow. Essentially, "the more you pave, the more you pay." The owner of a business with a large parking area would pay more than the owner of a residential home.

There are many reasons for municipalities to create a Stormwater Enterprise Fund. The key reasons are because a Stormwater Enterprise Fund is S.A.F.E.[9]:

- It is Stable – utility revenue is not as dependent on the uncertain annual budget process as tax revenue is.
- It is Adequate – stormwater fees are based on an advance planned stormwater program that meets the needs of the community.
- It is Flexible – the utility can adapt to changing program and funding needs over time.
- It is Equitable – stormwater fees are calculated on the basis of impact on the drainage system and receiving waters, not property value or land use.

Municipalities across the country are electing to establish Stormwater Enterprise Funds in order to provide stable and dedicated funding for their stormwater management programs. While there are many drivers for the increase in the number of Stormwater Enterprise Funds, the main driver is the cost of new or significantly expanded requirements to meet increasingly prescriptive Federal and State regulations and to protect public health and the environment. Requirements such as adoption and implementation of a stormwater management bylaw, finding and eliminating illegal connections to the drainage system, and operations, maintenance, and inspection programs are not able to be supported by overextended municipal budgets.

In Massachusetts, the drivers are no different. Over 20 municipalities have adopted active stormwater utilities, the first being in 1998.[10] Massachusetts General Law Chapter 83, Section 16 and Chapter 40, Section 1A, authorize municipalities to create stormwater utilities, to set up an authority to manage stormwater, and to charge utility fees for managing stormwater.

Once a Stormwater Enterprise Fund is established, all of the revenue is dedicated to an Enterprise Fund. The dedicated funds are used for stormwater operations, maintenance, capital improvements, planning, permitting, and compliance. Funds can pay for all related

[9] The acronym S.A.F.E. is widely used in Stormwater Enterprise Fund informational presentations and materials from a variety of sources.

[10] https://www.mass.gov/doc/massachusetts-stormwater-fee-summary/download

program expenses, including staff salaries, equipment and supplies, software, outside contractors, and more. An important distinction between stormwater fees and real estate taxes is that fees are user based and are tied to stormwater management services provided by the utility, whereas taxes are not tied to specific services. Stormwater enterprise funds do not compete with Police, Fire, Schools, or other Public Services for funding.

Loans and Grants: The Commonwealth of Massachusetts provides information on federal and state grant and loan programs that fund stormwater and water quality projects in Massachusetts.[11] The following programs may be applicable to the Town of Oxford:

- Section 319 Nonpoint Source Competitive Grants
- Section 604b Water Quality Management Planning Grants
- Clean Water State Revolving Fund Loans
- MEMA/FEMA Hazard Mitigation Grants including new Building Resilient Infrastructure and Communities (BRIC) program[12] (not mentioned on the website referenced above)
- Municipal Vulnerability and Preparedness Action Grant Program, assuming the community has first achieved MVP Designation through a planning grant process.
- Massachusetts Environmental Trust (MET) Grants
- Stormwater MS4 Municipal Assistance Grant Program
- MassWorks Infrastructure Grants (would require significant project)

More detail about these programs, including eligible projects, application requirements, timelines, and local commitment is available online.

Funding Sources Assessment Next Steps

To understand the magnitude of actually undertaking a 15-year phosphorus reduction program to comply with the MS4GP LPCP, we recommend the Town soon proceed with completing calculations (i.e., Baseline Phosphorus, Allowable Phosphorus Load, and Phosphorus Reduction Requirement due by June 30, 2022) to identify the following:

1. Baseline Phosphorus: Phosphorus loading estimates using EPA's methodology presented in the MS4GP Appendix F Attachment 1. This includes gathering the most up-to-date land use in each sub-watershed for waterbodies in which the MS4GP and TMDL require reduction of phosphorus and the impervious and pervious areas within each land use, as well as soils data. Attached are the maps from the Massachusetts Watershed-based Plans Toolkit[13] for Lowes Pond, McKinstry Pond, Robinson Pond, and Texas Pond in Oxford and Buffumville Lake in Charlton/Oxford. Note that, while Hudson Pond is outside the Regulated MS4 area, we also included the map to show the watershed is completely outside as well.

[11] https://www.mass.gov/service-details/available-funding-for-stormwater-projects-in-massachusetts
[12] https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities
[13] http://prj.geosyntec.com/MassDEPWBP

2. Phosphorus Reduction Requirement and Allowable Phosphorus Load: The annual pounds of phosphorus to be reduced by June 30, 2033, based on the required reduction rates in Table 2, and the amount allow to be discharged.

3. Available Land: Public land available for BMPs and associated potential reduction.

4. Work completed to date: Private land that has been developed or redeveloped and associated reduction or increase of phosphorus discharge.

5. Costs: Approximate associated capital and O&M costs to implement the overall program, based on publicly available information on non-structural, semi-structural, and structural BMP costs.

Attachments

1. Excerpts from Massachusetts Year 2008, 2010, 2012, 2014, and 2016 Integrated List of Waters

2. Subwatershed maps for Waterbodies Subject to May 2002 TMDL for Phosphorus for Selected French Basin Lakes

Tighe&Bond
Engineers | Environmental Specialists

ATTACHMENT 1

Massachusetts Category 4c Waters
"Impairment not Caused by a Pollutant"

NAME	SEGMENT ID	DESCRIPTION	SIZE	IMPAIRMENT CAUSE [EPA APPROVAL DATE-DOCUMENT CONTROL NUMBER]
North Great Meadows (82084)	MA82084_2008	Concord	73.5 acres	-(Exotic species*)
Rocky Pond (82095)	MA82095_2008	Boylston	61.8 acres	-(Exotic species*)
Russell Millpond (82096)	MA82096_2008	Chelmsford	32.9 acres	-(Flow alteration*) -(Exotic species*)
Warners Pond (82110)	MA82110_2008	Concord	59.3 acres	-Metals [12/20/2007-NEHgTMDL] -(Exotic species*)
Winning Pond (82123)	MA82123_2008	Billerica	22.2 acres	-(Exotic species*)
Connecticut				
Lake Bray (34013)	MA34013_2008	Holyoke	10.3 acres	-(Non-Native Aquatic Plants*)
Cranberry Pond (34018)	MA34018_2008	Sunderland	28.1 acres	-(Eurasian Water Milfoil, Myriophyllum spicatum*)
Lake Holland (34035)	MA34035_2008	Belchertown	10.6 acres	-(Non-Native Aquatic Plants*)
Ingraham Brook Pond (34037)	MA34037_2008	Granby	4.6 acres	-(Non-Native Aquatic Plants*)
Leverett Pond (34042)	MA34042_2008	Leverett	90.7 acres	-(Eurasian Water Milfoil, Myriophyllum spicatum*) -(Non-Native Aquatic Plants*) -Nutrient/Eutrophication Biological Indicators [4/12/2002-CN112.0]
Lower Mill Pond (34048)	MA34048_2008	Easthampton	29.6 acres	-(Non-Native Aquatic Plants*)
Lower Van Horn Park Pond (34129)	MA34129_2008	Springfield	11.1 acres	-(Non-Native Aquatic Plants*)
Oxbow Cutoff (34067)	MA34067_2008	The waterbody north of Island Road and south of Oxbow Road (between Routes 91and 5), Northampton.	48.8 acres	-(Non-Native Aquatic Plants*)
Lake Warner (34098)	MA34098_2008	Hadley	65.1 acres	-Excess Algal Growth [4/12/2002-CN112.0] -(Non-Native Aquatic Plants*) -Oxygen, Dissolved [4/12/2002-CN112.0] -Turbidity [4/12/2002-CN112.0] -Phosphorus (Total) [4/12/2002-CN112.0]
Whiting Street Reservoir (34101)	MA34101_2008	Holyoke	102 acres	-(Eurasian Water Milfoil, Myriophyllum spicatum*)
Deerfield				
Tannery Pond (33020)	MA33020_2008	Savoy	0.52 acres	-(Flow alteration*)
Farmington				
Benton Pond (31003)	MA31003_2008	Otis	61.4 acres	-(Exotic species*)
Noyes Pond (31026)	MA31026_2008	Tolland	166 acres	-(Exotic species*)
French				
Bouchard Pond (42003)	MA42003_2008	Leicester	2.5 acres	-(Exotic species*)
Buffum Pond (42004)	MA42004_2008	Charlton/Oxford	23.2 acres	-(Exotic species*)
Buffumville Lake (42005)	MA42005_2008	Charlton/Oxford	199 acres	-Metals [12/20/2007-NEHgTMDL] -Noxious aquatic plants [7/12/2002-CN110.0] -(Exotic species*)
Cedar Meadow Pond (42009)	MA42009_2008	Leicester	140 acres	-Noxious aquatic plants [7/12/2002-CN110.0] -(Exotic species*)
Gore Pond (42018)	MA42018_2008	Dudley/Charlton	169 acres	-Organic enrichment/Low DO [7/12/2002-CN110.0] -Noxious aquatic plants [7/12/2002-CN110.0] -Turbidity [7/12/2002-CN110.0] -(Exotic species*)
Granite Reservoir (42019)	MA42019_2008	Charlton	207 acres	-Noxious aquatic plants [7/12/2002-CN110.0] -(Exotic species*)

* - non Pollutant
[ ] – TMDL (Restorative)
< > – TMDL (Protective)

Massachusetts Category 4a Waters
"TMDL is Completed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	POLLUTANT(S) ADDRESSED BY TMDL or OTHER POLLUTION CONTROLS [EPA APPROVAL DATE-DOCUMENT CONTROL NUMBER]
Charles				
Bogastow Brook (7239775)	MA72-16_2008	Headwaters, outlet Factory Pond, Holliston to inlet South End Pond, Millis.	9.5 miles	-Fecal Coliform [5/22/2007-CN156.0]
Echo Lake (72035)	MA72035_2008	Milford/Hopkinton	72.3 acres	-Mercury in Fish Tissue [12/20/2007-NEHgTMDL]
Unnamed Tributary (7239078)	MA72-32_2008	Locally known as Sawins Brook - emerges east of Elm Street, Watertown to confluence with the Charles River, Watertown (sections culverted).	0.54 miles	-Escherichia coli [5/22/2007-CN156.0]
Chicopee				
Long Pond (36083)	MA36083_2008	Springfield	13.7 acres	-Noxious aquatic plants [4/12/2002-CN118.0]
Minechoag Pond (36093)	MA36093_2008	Ludlow	20.8 acres	-Noxious aquatic plants [4/12/2002-CN118.0]
Mona Lake (36094)	MA36094_2008	Springfield	10.7 acres	-Noxious aquatic plants [4/12/2002-CN118.0]
Pottapaug Pond (36125)	MA36125_2008	Petersham/Hardwick	568 acres	-Metals [12/20/2007-NEHgTMDL]
Quabbin Reservoir (36129)	MA36129_2008	Petersham/Pelham/Ware/Hardwick/Shutesbury/Belchertown/New Salem	24012 acres	-Metals [12/20/2007-NEHgTMDL]
Spectacle Pond (36142)	MA36142_2008	Wilbraham	8.5 acres	-Noxious aquatic plants [4/12/2002-CN118.0]
Sugden Reservoir (36150)	MA36150_2008	Spencer	85.3 acres	-Nutrients [4/12/2002-CN118.0] -Organic enrichment/Low DO [4/12/2002-CN118.0] -Turbidity <4/12/2002-CN118.0>
Wickaboag Pond (36166)	MA36166_2008	West Brookfield	315 acres	-Metals [12/20/2007-NEHgTMDL] -Noxious aquatic plants [4/12/2002-CN118.0] -Turbidity [4/12/2002-CN118.0]
Concord				
Nutting Lake (82124)	MA82124_2008	[West Basin] Billerica	51.4 acres	-Metals [12/20/2007-NEHgTMDL]
Sudbury Reservoir (82106)	MA82106_2008	Southborough/Marlborough	1178 acres	-Metals [12/20/2007-NEHgTMDL]
Walden Pond (82109)	MA82109_2008	Concord	62.9 acres	-Metals [12/20/2007-NEHgTMDL]
Connecticut				
Bachelor Brook (3418000)	MA34-07_2008	Outlet Forge Pond, Granby to confluence with Connecticut River, South Hadley (through former segments Aldrich Lake [East Basin] MA34002 and Aldrich Lake [West Basin] MA34106).	11.6 miles	-Nutrient/Eutrophication Biological Indicators [4/12/2002-CN112.0]
Loon Pond (34045)	MA34045_2008	Springfield	25.1 acres	-Nutrient/Eutrophication Biological Indicators [4/12/2002-CN112.0]
Lake Wyola (34103)	MA34103_2008	Shutesbury	126 acres	-Nutrient/Eutrophication Biological Indicators [4/12/2002-CN112.0] -Phosphorus (Total) [4/12/2002-CN112.0]
Deerfield				
Plainfield Pond (33017)	MA33017_2008	Plainfield	59.6 acres	-Metals [12/20/2007-NEHgTMDL]
Farmington				
Otis Reservoir (31027)	MA31027_2008	Otis/Tolland/Blandford	989 acres	-Metals [12/20/2007-NEHgTMDL]
French				
Dresser Hill Pond (42014)	MA42014_2008	Charlton	8.1 acres	-Turbidity [7/12/2002-CN110.0]
Dutton Pond (42015)	MA42015_2008	Leicester	6.0 acres	-Nutrients [7/12/2002-CN110.0] -Noxious aquatic plants [7/12/2002-CN110.0]
Greenville Pond (42023)	MA42023_2008	Leicester	30.5 acres	-Turbidity [7/12/2002-CN110.0]
Hudson Pond (42029)	MA42029_2008	Oxford	15.4 acres	-Noxious aquatic plants [7/12/2002-CN110.0]

Massachusetts Category 4a Waters
"TMDL is Completed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	POLLUTANT(S) ADDRESSED BY TMDL or OTHER POLLUTION CONTROLS [EPA APPROVAL DATE-DOCUMENT CONTROL NUMBER]
Jones Pond (42030)	MA42030_2008	Charlton/Spencer	30.2 acres	-Noxious aquatic plants [7/12/2002-CN110.0]
Lowes Pond (42034)	MA42034_2008	Oxford	33.4 acres	-Noxious aquatic plants [7/12/2002-CN110.0]
Mckinstry Pond (42035)	MA42035_2008	Oxford	15.9 acres	-Noxious aquatic plants [7/12/2002-CN110.0]
Mosquito Pond (42060)	MA42060_2008	Dudley	10.5 acres	-Noxious aquatic plants [7/12/2002-CN110.0]
New Pond (42037)	MA42037_2008	Dudley	32.6 acres	-Noxious aquatic plants [7/12/2002-CN110.0]
Peter Pond (42042)	MA42042_2008	Dudley	42.3 acres	-Nutrients [7/12/2002-CN110.0] -Organic enrichment/Low DO [7/12/2002-CN110.0]
Pikes Pond (42044)	MA42044_2008	Charlton	28.2 acres	-Turbidity [7/12/2002-CN110.0]
Robinson Pond (42047)	MA42047_2008	Oxford	99.3 acres	-Noxious aquatic plants [7/12/2002-CN110.0]
Rochdale Pond (42048)	MA42048_2008	Leicester	42.6 acres	-Nutrients [7/12/2002-CN110.0] -Organic enrichment/Low DO [7/12/2002-CN110.0] -Noxious aquatic plants [7/12/2002-CN110.0]
Shepherd Pond (42051)	MA42051_2008	Dudley	15.8 acres	-Noxious aquatic plants [7/12/2002-CN110.0]
Wallis Pond (42062)	MA42062_2008	Dudley	23.8 acres	-Organic enrichment/Low DO [7/12/2002-CN110.0] -Noxious aquatic plants [7/12/2002-CN110.0]
Ipswich				
Hood Pond (92025)	MA92025_2008	Ipswich/Topsfield	67.4 acres	-Metals [12/20/2007-NEHgTMDL]
Mill Pond (92041)	MA92041_2008	Burlington	59.1 acres	-Metals [12/20/2007-NEHgTMDL]
Islands				
Gibbs Pond (97028)	MA97028_2008	Nantucket	34.0 acres	-Metals [12/20/2007-NEHgTMDL]
Miacomet Pond (97055)	MA97055_2008	Nantucket	34.2 acres	-Metals [12/20/2007-NEHgTMDL]
Tom Nevers Pond (97097)	MA97097_2008	Nantucket	11.2 acres	-Metals [12/20/2007-NEHgTMDL]
Merrimack				
Forge Pond (84015)	MA84015_2008	Westford/Littleton	203 acres	-Metals [12/20/2007-NEHgTMDL]
Locust Pond (84031)	MA84031_2008	Tyngsborough	16.1 acres	-Metals [12/20/2007-NEHgTMDL]
Nabnasset Pond (84044)	MA84044_2008	Westford	136 acres	-Metals [12/20/2007-NEHgTMDL]
Millers				
Bents Pond (35007)	MA35007_2008	Gardner	6.2 acres	-Noxious aquatic plants [2/5/2003-CN123.2] -Turbidity [2/5/2003-CN123.2]
Bourn-Hadley Pond (35008)	MA35008_2008	Templeton	25.8 acres	-Noxious aquatic plants [2/5/2003-CN123.2]
Brazell Pond (35010)	MA35010_2008	Templeton	14.7 acres	-Noxious aquatic plants [2/5/2003-CN123.2]
Lake Denison (35017)	MA35017_2008	Winchendon	83.5 acres	-Metals [12/20/2007-NEHgTMDL] -Organic enrichment/Low DO [2/5/2003-CN123.2]
Depot Pond (35018)	MA35018_2008	(Railroad Pond) Templeton	15.2 acres	-Noxious aquatic plants [2/5/2003-CN123.2]
Greenwood Pond (35026)	MA35026_2008	Templeton	12.5 acres	-Noxious aquatic plants [2/5/2003-CN123.2]
Hilchey Pond (35029)	MA35029_2008	Gardner	7.6 acres	-Turbidity [2/5/2003-CN123.2]
Ramsdall Pond (35062)	MA35062_2008	Gardner	2.1 acres	-Noxious aquatic plants [2/5/2003-CN123.2]
Reservoir No. 1 (35063)	MA35063_2008	Athol	7.7 acres	-Noxious aquatic plants [2/5/2003-CN123.2]
Stoddard Pond (35083)	MA35083_2008	Winchendon	51.8 acres	-Noxious aquatic plants [2/5/2003-CN123.2]
Upper Naukeag Lake (35090)	MA35090_2008	Ashburnham	305 acres	-Metals [12/20/2007-NEHgTMDL]
Upper Reservoir (35091)	MA35091_2008	Westminster	41.6 acres	-Metals [12/20/2007-NEHgTMDL]
Whites Mill Pond (35099)	MA35099_2008	Winchendon	42.4 acres	-Noxious aquatic plants [2/5/2003-CN123.2]

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	POLLUTANT NEEDING TMDL [EPA APPROVAL DATE-DOCUMENT CONTROL NUMBER]
French River (4230075)	MA42-05_2008	Dam at North Village to Webster/Dudley WWTP, Webster/Dudley.	2.4 miles	-Organic enrichment/Low DO -(Other habitat alterations*) -Pathogens -Taste, odor and color -(Objectionable deposits*)
French River (4230075)	MA42-06_2008	Webster-Dudley WWTP to Connecticut state line.	0.92 miles	-Nutrients -Organic enrichment/Low DO -(Other habitat alterations*) -Pathogens -Taste, odor and color -Turbidity -(Objectionable deposits*)
Little River (4230275)	MA42-09_2008	Outlet Pikes Pond, Charlton to confluence with French River, Oxford.	7.1 miles	-Metals
Texas Pond (42058)	MA42058_2008	Oxford	27.9 acres	-Metals -Noxious aquatic plants [7/12/2002-CN110.0]
Thayers Pond (42059)	MA42059_2008	Oxford	6.4 acres	-Metals -Nutrients -Turbidity
Hoosic				
Cheshire Reservoir (11002)	MA11002_2008	[North Basin] Cheshire	284 acres	-(Eurasian Water Milfoil, Myriophyllum spicatum*) -(Non-Native Aquatic Plants*) -Turbidity -Nutrient/Eutrophication Biological Indicators -Aquatic Plants (Macrophytes)
Cheshire Reservoir (11018)	MA11018_2008	[Middle Basin] Cheshire/Lanesborough	186 acres	-(Eurasian Water Milfoil, Myriophyllum spicatum*) -(Non-Native Aquatic Plants*) -Aquatic Plants (Macrophytes)
Cheshire Reservoir (11019)	MA11019_2008	[South Basin] Cheshire/Lanesborough	91.7 acres	-(Eurasian Water Milfoil, Myriophyllum spicatum*) -Excess Algal Growth -(Non-Native Aquatic Plants*)
Green River (1100650)	MA11-06_2008	Headwaters southwest of Sugarloaf Mountain (west of Ingraham Road), New Ashford to confluence with Hoosic River, Williamstown.	12.5 miles	-Fecal Coliform
Hoosic River (1100500)	MA11-03_2008	Headwaters, outlet Cheshire Reservoir, Cheshire to Adams WWTP discharge, Adams.	8.8 miles	-(Other flow regime alterations*) -(Physical substrate habitat alterations*) -Temperature, water -Fecal Coliform -(Alteration in stream-side or littoral vegetative covers*) -Ambient Bioassays -- Chronic Aquatic Toxicity
Hoosic River (1100500)	MA11-04_2008	Adams WWTP discharge, Adams to confluence with North Branch Hoosic River, North Adams.	5.4 miles	-(Other flow regime alterations*) -Fecal Coliform -(Alteration in stream-side or littoral vegetative covers*)

Massachusetts Category 4a Waters
"TMDL is Completed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	POLLUTANTS ADDRESSED BY TMDL	EPA TMDL NO.
Connecticut					
Leverett Pond	MA34042	Leverett	90.709 ACRES		
				Nutrient/Eutrophication Biological Indicators	675
				(Eurasian Water Milfoil, Myriophyllum spicatum*)	
				(Non-Native Aquatic Plants*)	
Loon Pond	MA34045	Springfield	25.104 ACRES		
				Nutrient/Eutrophication Biological Indicators	726
Bachelor Brook	MA34-07	Outlet Forge Pond, Granby to confluence with Connecticut River, South Hadley (through former segments Aldrich Lake [East Basin] MA34002 and Aldrich Lake [West Basin] MA34106).	11.606 MILES		
				Nutrient/Eutrophication Biological Indicators	5, 6
Lake Warner	MA34098	Hadley	65.132 ACRES		
				(Non-Native Aquatic Plants*)	
				Excess Algal Growth	651
				Oxygen, Dissolved	651
				Phosphorus (Total)	651
				Turbidity	651
Lake Wyola	MA34103	Shutesbury	126.119 ACRES		
				Phosphorus (Total)	653
				Nutrient/Eutrophication Biological Indicators	653
Deerfield					
Plainfield Pond	MA33017	Plainfield	59.616 ACRES		
				Mercury in Fish Tissue	33880
Farmington					
Otis Reservoir	MA31027	Otis/Tolland/Blandford	988.88 ACRES		
				Mercury in Fish Tissue	33880
French					
Buffumville Lake	MA42005	Charlton/Oxford	199 ACRES		
				Mercury in Fish Tissue	33880
				Excess Algal Growth	2358
				(Non-Native Aquatic Plants*)	
Cedar Meadow Pond	MA42009	Leicester	140 ACRES		

* TMDL not required (Non-Pollutant)

Massachusetts Category 4a Waters
"TMDL is Completed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	POLLUTANTS ADDRESSED BY TMDL	EPA TMDL NO.
				Aquatic Plants (Macrophytes)	2359
				(Non-Native Aquatic Plants*)	
Dresser Hill Pond	MA42014	Charlton	8 ACRES		
				Turbidity	2360
Dutton Pond	MA42015	Leicester	6 ACRES		
				Phosphorus (Total)	2354
				Nutrient/Eutrophication Biological Indicators	2354
Gore Pond	MA42018	Dudley/Charlton	169 ACRES		
				Oxygen, Dissolved	2361
				Turbidity	2361
				(Non-Native Aquatic Plants*)	
				Excess Algal Growth	2361
Granite Reservoir	MA42019	Charlton	207 ACRES		
				(Non-Native Aquatic Plants*)	
				Aquatic Plants (Macrophytes)	2362
Greenville Pond	MA42023	Leicester	31 ACRES		
				Turbidity	2355
Hudson Pond	MA42029	Oxford/Sutton	15 ACRES		
				Aquatic Plants (Macrophytes)	2363
Jones Pond	MA42030	Charlton/Spencer	30 ACRES		
				Aquatic Plants (Macrophytes)	2364
Lowes Pond	MA42034	Oxford	33 ACRES		
				Aquatic Plants (Macrophytes)	2366
McKinstry Pond	MA42035	Oxford	16 ACRES		
				Aquatic Plants (Macrophytes)	2367
New Pond	MA42037	Dudley	33 ACRES		
				Aquatic Plants (Macrophytes)	2368
Peter Pond	MA42042	Dudley	42 ACRES		
				Phosphorus (Total)	2369
				Oxygen, Dissolved	2369
Pierpoint Meadow Pond	MA42043	Dudley/Charlton	95 ACRES		
				Aquatic Plants (Macrophytes)	2370
				(Non-Native Aquatic Plants*)	
Pikes Pond	MA42044	Charlton	28 ACRES		
				Turbidity	2371

Massachusetts Category 2 Waters
"Attaining Some Uses; other Uses Not Assessed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	USES ATTAINED
				Aesthetic
Hubbard Brook	MA31-16	Confluence Babcock Brook and Hall Pond Brook, Tolland to border of Granville, Massachusetts/Hartland, Connecticut.	4.0271 MILES	
				Fish, other Aquatic Life and Wildlife
				Aesthetic
French				
Unnamed Tributary	MA42-01	Unnamed tributary to Town Meadow Brook, outlet Sargent Pond, Leicester to inlet Dutton Pond, Leicester.	0.5 MILES	
				Fish, other Aquatic Life and Wildlife
Robinson Pond	MA42047	Oxford	99 ACRES	
				Aesthetic
Mill Brook	MA42-10	Headwaters, outlet Webster Lake, Webster to confluence with French River, Webster.	1.2 MILES	
				Fish, other Aquatic Life and Wildlife
				Aesthetic
Wellington Brook	MA42-11	Headwaters south of Cedar Street, Auburn to confluence with French River, Oxford.	3.4 MILES	
				Secondary Contact Recreation
				Primary Contact Recreation
				Fish, other Aquatic Life and Wildlife
				Aesthetic
Mine Brook	MA42-16	Headwaters, Webster to inlet Club Pond, Webster.	1.4 MILES	
				Secondary Contact Recreation
				Primary Contact Recreation
				Fish, other Aquatic Life and Wildlife
				Aesthetic
Unnamed Tributary	MA42-19	Unnamed tributary to the French River on the 1982 USGS quad as 'Lowes Brook' , from the outlet of Lowes Pond, Oxford to the confluence with the French River, Oxford.	1.3 MILES	
				Aesthetic
				Fish, other Aquatic Life and Wildlife
				Secondary Contact Recreation
				Primary Contact Recreation
Unnamed Tributary	MA42-20	Unnamed tributary to South Fork locally known as 'Potters Brook', from outlet of Old Mill Pond Dam (MA01833), Charlton to the confluence with South Fork, Charlton.	0.9 MILES	
				Primary Contact Recreation
				Fish, other Aquatic Life and Wildlife

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	IMPAIRMENT CAUSE [EPA TMDL No.]
				Oxygen, Dissolved
French				
French River	MA42-03	Headwaters, outlet Greenville Pond, Leicester to the outlet of Thayer Pond, Oxford (excluding approximately 0.6 miles through Rochdale Pond segment MA42048) (through former pond segments Texas Pond MA42058 and Thayers Pond MA42059).	3.8 MILES	
				Phosphorus (Total)
				Mercury in Fish Tissue
				Turbidity
				Aquatic Plants (Macrophytes) [2357]
French River	MA42-04	From dam just upstream of Clara Barton Road, Oxford, to dam at North Village, Webster/Dudley.	9.6 MILES	
				Mercury in Fish Tissue
French River	MA42-05	Dam at North Village, Webster/Dudley to Webster WWTP outfall, Webster/Dudley.	2.4 MILES	
				(Debris/Floatables/Trash*)
				(Other flow regime alterations*)
				Aquatic Macroinvertebrate Bioassessments
				Fecal Coliform
French River	MA42-06	Webster WWTP outfall, Webster/Dudley to state line, Dudley, MA/Thompson,CT.	1 MILES	
				Other
				Fecal Coliform
				Sediment Screening Value (Exceedence)
				Taste and Odor
				Turbidity
				Aquatic Macroinvertebrate Bioassessments
				(Debris/Floatables/Trash*)
Burncoat Brook	MA42-07	Headwaters, outlet Bouchard Pond, Leicester to confluence with Town Meadow Brook, Leicester (through former pond segment Ballard Hill Pond MA42069).	1 MILES	
				Aquatic Macroinvertebrate Bioassessments
				Escherichia coli
Little River	MA42-13	Headwaters, outlet Pikes Pond, Charlton to inlet Buffumville Lake, Charlton (formerly part of segment MA42-09).	3.5 MILES	
				Oxygen, Dissolved

* TMDL not required (Non-Pollutant)

Massachusetts Category 2 Waters
"Attaining some uses; other uses not assessed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	USES ATTAINED*				
					Aesthetic	Fish, other Aquatic Life and Wildlife	Primary Contact Recreation	Secondary Contact Recreation	Shellfish Harvesting
Buck River	MA31-12	Headwaters draining wetland just south of Morley Hill and Cronk Road, Sandisfield to confluence with the Clam River, Sandisfield.	6.398259	MILES	X	X			
Clam River	MA31-03	Outlet of Royal Pond, Otis to confluence with West Branch Farmington River, Sandisfield.	9.542	MILES	X	X			
Cone Brook	MA31-08	Drainage from Angerman Swamp in Beartown State Forest, Otis to Hayden Pond, Otis.	2.101	MILES	X	X			
Fall River	MA31-02	Outlet Larkum Pond, Otis to confluence with West Branch Farmington River, Otis.	0.761	MILES	X	X			
Hubbard Brook	MA31-16	Confluence Babcock Brook and Hall Pond Brook, Tolland to border of Granville, Massachusetts/Hartland, Connecticut.	4.0271	MILES	X	X			
Sandy Brook	MA31-14	Outlet York Lake, New Marlborough to border of Sandisfield, Massachusetts/Norfolk, Connecticut.	4.977348	MILES	X	X			
Valley Brook	MA31-15	Source, northwest of Holden Hill, Granville to border of Granville, Massachusetts/Hartland, Connecticut.	5.894326	MILES	X	X			
French									
Mill Brook	MA42-10	Headwaters, outlet Webster Lake, Webster to confluence with French River, Webster.	1.2	MILES	X	X			
Mine Brook	MA42-16	Headwaters, Webster to inlet Club Pond, Webster.	1.4	MILES	X	X	X	X	
Robinson Pond	MA42047	Oxford	99	ACRES	X				
Unnamed Tributary	MA42-01	Unnamed tributary to Town Meadow Brook, outlet Sargent Pond, Leicester to inlet Dutton Pond, Leicester.	0.5	MILES		X			
Unnamed Tributary	MA42-19	Unnamed tributary to the French River on the 1982 USGS quad as 'Lowes Brook' , from the outlet of Lowes Pond, Oxford to the confluence with the French River, Oxford.	1.3	MILES	X	X	X	X	
Unnamed Tributary	MA42-20	Unnamed tributary to South Fork locally known as 'Potters Brook', from outlet of Old Mill Pond Dam (MA01833), Charlton to the confluence with South Fork, Charlton.	0.9	MILES	X	X	X	X	
Wellington Brook	MA42-11	Headwaters south of Cedar Street, Auburn to confluence with French River, Oxford.	3.4	MILES	X	X	X	X	
Hoosic									
Dry Brook	MA11-13	Headwaters, west of Jackson Road (in Savoy Wildlife Management Area), Savoy to confluence with Hoosic River, Adams.	6.702	MILES	X	X	X	X	
East Branch Green River	MA11-21	Headwaters, northeast of Sugarloaf Mountain, New Ashford to confluence with Green River, New Ashford.	2.227	MILES	X	X			
Hemlock Brook	MA11-09	Headwaters, south of Route 2 in the Taconic Trail State Park to confluence with the Hoosic River, Wiliamstown.	7.083	MILES	X	X	X	X	

* Attained uses denoted by "X"

Massachusetts Category 4a Waters
"TMDL is completed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	POLLUTANTS ADDRESSED BY TMDL	EPA TMDL NO.
Warners Pond	MA82110	Concord	59.338	ACRES	(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	33880
Connecticut						
Bachelor Brook	MA34-07	Outlet Forge Pond, Granby to confluence with Connecticut River, South Hadley (through former segments Aldrich Lake [East Basin] MA34002 and Aldrich Lake [West Basin] MA34106).	11.606	MILES	Nutrient/Eutrophication Biological Indicators	5
					Nutrient/Eutrophication Biological Indicators	6
Lake Warner	MA34098	Hadley	65.132	ACRES	(Non-Native Aquatic Plants*)	
					Excess Algal Growth	651
					Oxygen, Dissolved	651
					Phosphorus (Total)	651
					Turbidity	651
Lake Wyola	MA34103	Shutesbury	126.119	ACRES	Nutrient/Eutrophication Biological Indicators	653
					Phosphorus (Total)	653
Leverett Pond	MA34042	Leverett	90.709	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					(Non-Native Aquatic Plants*)	
					Nutrient/Eutrophication Biological Indicators	675
Loon Pond	MA34045	Springfield	25.104	ACRES	Nutrient/Eutrophication Biological Indicators	726
Deerfield						
Ashfield Pond	MA33001	Ashfield	38.041	ACRES	Mercury in Fish Tissue	42397
Plainfield Pond	MA33017	Plainfield	59.616	ACRES	Mercury in Fish Tissue	33880
Farmington						
Otis Reservoir	MA31027	Otis/Tolland/Blandford	988.88	ACRES	Mercury in Fish Tissue	33880
French						
Buffumville Lake	MA42005	Charlton/Oxford	199	ACRES	(Non-Native Aquatic Plants*)	
					Excess Algal Growth	2358
					Mercury in Fish Tissue	33880
Cedar Meadow Pond	MA42009	Leicester	140	ACRES	(Non-Native Aquatic Plants*)	
					Aquatic Plants (Macrophytes)	2359
Dresser Hill Pond	MA42014	Charlton	8	ACRES	Turbidity	2360
Dutton Pond	MA42015	Leicester	6	ACRES	Nutrient/Eutrophication Biological Indicators	2354
					Phosphorus (Total)	2354

* TMDL not required (Non-pollutant)

Massachusetts Category 4a Waters
"TMDL is completed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	POLLUTANTS ADDRESSED BY TMDL	EPA TMDL NO.
Gore Pond	MA42018	Dudley/Charlton	169	ACRES	(Non-Native Aquatic Plants*)	
					Excess Algal Growth	2361
					Oxygen, Dissolved	2361
					Turbidity	2361
Granite Reservoir	MA42019	Charlton	207	ACRES	(Non-Native Aquatic Plants*)	
					Aquatic Plants (Macrophytes)	2362
Greenville Pond	MA42023	Leicester	31	ACRES	Turbidity	2355
Hudson Pond	MA42029	Oxford/Sutton	15	ACRES	Aquatic Plants (Macrophytes)	2363
Jones Pond	MA42030	Charlton/Spencer	30	ACRES	Aquatic Plants (Macrophytes)	2364
Larner Pond	MA42068	Dudley	27	ACRES	(Non-Native Aquatic Plants*)	
					Aquatic Plants (Macrophytes)	2365
Lowes Pond	MA42034	Oxford	33	ACRES	Aquatic Plants (Macrophytes)	2366
McKinstry Pond	MA42035	Oxford	16	ACRES	Aquatic Plants (Macrophytes)	2367
Mosquito Pond	MA42060	Dudley	11	ACRES	Aquatic Plants (Macrophytes)	2374
New Pond	MA42037	Dudley	33	ACRES	Aquatic Plants (Macrophytes)	2368
Peter Pond	MA42042	Dudley	42	ACRES	Oxygen, Dissolved	2369
					Phosphorus (Total)	2369
Pierpoint Meadow Pond	MA42043	Dudley/Charlton	95	ACRES	(Non-Native Aquatic Plants*)	
					Aquatic Plants (Macrophytes)	2370
Pikes Pond	MA42044	Charlton	28	ACRES	Turbidity	2371
Rochdale Pond	MA42048	Leicester	43	ACRES	Nutrient/Eutrophication Biological Indicators	2356
Shepherd Pond	MA42051	Dudley	16	ACRES	Aquatic Plants (Macrophytes)	2373
Wallis Pond	MA42062	Dudley	24	ACRES	Aquatic Plants (Macrophytes)	2375
					Oxygen, Dissolved	2375
Housatonic						
Stockbridge Bowl	MA21105	Stockbridge	383.495	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					Mercury in Fish Tissue	33880
Ipswich						
Hood Pond	MA92025	Ipswich/Topsfield	67.446	ACRES	Mercury in Fish Tissue	33880
Mill Pond	MA92041	Burlington	59.084	ACRES	Mercury in Fish Tissue	33880

* TMDL not required (Non-pollutant)

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Green River	MA33-30	From Greenfield swimming pool dam (northwest of Nashs Mill Road), Greenfield to confluence with the Deerfield River, Greenfield . (formerly segment MA33-10 and part of segment MA33-09)	3.735	MILES	Fecal Coliform	
Sherman Reservoir	MA33018	Massachusetts portion only. Rowe/Monroe/Whitingham, Vt.	72.437	ACRES	Mercury in Fish Tissue	
South River	MA33-08	Emments Road Ashfield to confluence with Deerfield River, Conway (through South River Impoundment formerly segment MA33022).	12.957	MILES	(Physical substrate habitat alterations*)	
					Fecal Coliform	
Farmington						
Big Pond	MA31004	Otis	325.203	ACRES	Mercury in Fish Tissue	33880
					Oxygen, Dissolved	
Shaw Pond	MA31036	Becket/Otis	80.431	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					Oxygen, Dissolved	
Upper Spectacle Pond	MA31044	Sandisfield/Otis	52.655	ACRES	Oxygen, Dissolved	
West Branch Farmington River	MA31-01	Outlet of Hayden Pond, Otis to Sandisfield/Tolland, Massachusetts and Colebrook, Connecticut in the Colebrook Reservoir.	16.134	MILES	Lack of a coldwater assemblage	
York Lake	MA31052	New Marlborough	28.763	ACRES	Oxygen, Dissolved	
French						
Burncoat Brook	MA42-07	Headwaters, outlet Bouchard Pond, Leicester to confluence with Town Meadow Brook, Leicester (through former pond segment Ballard Hill Pond MA42069).	1	MILES	Aquatic Macroinvertebrate Bioassessments	
					Escherichia coli	
French River	MA42-03	Headwaters, outlet Greenville Pond, Leicester to the outlet of Thayer Pond, Oxford (excluding approximately 0.6 miles through Rochdale Pond segment MA42048) (through former pond segments Texas Pond MA42058 and Thayers Pond MA42059).	3.8	MILES	Aquatic Plants (Macrophytes)	2357
					Mercury in Fish Tissue	
					Phosphorus (Total)	
					Turbidity	
French River	MA42-04	From dam just upstream of Clara Barton Road, Oxford, to dam at North Village, Webster/Dudley.	9.6	MILES	Mercury in Fish Tissue	
French River	MA42-05	Dam at North Village, Webster/Dudley to Webster WWTP outfall, Webster/Dudley.	2.4	MILES	(Debris/Floatables/Trash*)	
					(Other flow regime alterations*)	
					Aquatic Macroinvertebrate Bioassessments	
					Fecal Coliform	

* TMDL not required (Non-pollutant)

Massachusetts Category 2 Waters
"Attaining some uses; other uses not assessed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	USES ATTAINED*				
					Aesthetic	Fish, other Aquatic Life and Wildlife	Primary Contact Recreation	Secondary Contact Recreation	Shellfish Harvesting
Valley Brook	MA31-15	Source, northwest of Holden Hill, Granville to border of Granville, Massachusetts/Hartland, Connecticut.	5.894326	MILES	X	X			
French									
Mill Brook	MA42-10	Headwaters, outlet Webster Lake, Webster to confluence with French River, Webster.	1.2	MILES	X	X			
Mine Brook	MA42-16	Headwaters, Webster to inlet Club Pond, Webster.	1.4	MILES	X	X	X	X	
Robinson Pond	MA42047	Oxford	99	ACRES	X				
Unnamed Tributary	MA42-01	Unnamed tributary to Town Meadow Brook, outlet Sargent Pond, Leicester to inlet Dutton Pond, Leicester.	0.5	MILES		X			
Unnamed Tributary	MA42-19	Unnamed tributary to the French River on the 1982 USGS quad as 'Lowes Brook' , from the outlet of Lowes Pond, Oxford to the confluence with the French River, Oxford.	1.3	MILES	X	X	X	X	
Unnamed Tributary	MA42-20	Unnamed tributary to South Fork locally known as 'Potters Brook', from outlet of Old Mill Pond Dam (MA01833), Charlton to the confluence with South Fork, Charlton.	0.9	MILES	X	X	X	X	
Wellington Brook	MA42-11	Headwaters south of Cedar Street, Auburn to confluence with French River, Oxford.	3.4	MILES	X	X	X	X	
Housatonic									
Cady Brook	MA21-12	Source, Peru to the inlet of Windsor Reservoir, Hinsdale.	3.507	MILES	X	X			
Cleveland Brook	MA21-08	Headwaters, outlet of Cleveland Brook Reservoir, Hinsdale to confluence with East Branch Housatonic River, Dalton.	1.927	MILES	X	X			
Furnace Brook	MA21-21	Headwaters south of Route 295 (Canaan Road), Richmond to inlet Mud Ponds, West Stockbridge.	3.649	MILES		X			
Goose Pond Brook	MA21-07	Outlet of Goose Pond, Tyringham to confluence with the Housatonic River, Lee.	3.252	MILES	X	X	X	X	
Green River	MA21-23	Alford, Massachusetts/Hillsdale, New York border southwest of Route 71 to confluence with the Housatonic River, Great Barrington.	10.139	MILES	X	X	X	X	
Greenwater Brook	MA21-27	Headwaters, outlet of Greenwater Pond, Becket to the confluence with Goose Pond Brook, Lee	4.435	MILES	X	X	X	X	

Massachusetts Category 4a Waters
"TMDL is completed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	POLLUTANTS ADDRESSED BY TMDL	EPA TMDL NUMBER
Warners Pond	MA82110	Concord	59.338	ACRES	(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	33880
Connecticut						
Bachelor Brook	MA34-07	Outlet Forge Pond, Granby to confluence with Connecticut River, South Hadley (through former segments Aldrich Lake [East Basin] MA34002 and Aldrich Lake [West Basin] MA34106).	11.606	MILES	Nutrient/Eutrophication Biological Indicators	5
					Nutrient/Eutrophication Biological Indicators	6
Lake Warner	MA34098	Hadley	65.132	ACRES	(Non-Native Aquatic Plants*)	
					Excess Algal Growth	651
					Oxygen, Dissolved	651
					Phosphorus (Total)	651
					Turbidity	651
Lake Wyola	MA34103	Shutesbury	126.119	ACRES	Nutrient/Eutrophication Biological Indicators	653
					Phosphorus (Total)	653
Leverett Pond	MA34042	Leverett	90.709	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					(Non-Native Aquatic Plants*)	
					Nutrient/Eutrophication Biological Indicators	675
Loon Pond	MA34045	Springfield	25.104	ACRES	Nutrient/Eutrophication Biological Indicators	726
Deerfield						
Ashfield Pond	MA33001	Ashfield	38.041	ACRES	Mercury in Fish Tissue	42397
Plainfield Pond	MA33017	Plainfield	59.616	ACRES	Mercury in Fish Tissue	33880
Farmington						
Otis Reservoir	MA31027	Otis/Tolland/Blandford	988.88	ACRES	Mercury in Fish Tissue	33880
French						
Buffumville Lake	MA42005	Charlton/Oxford	199	ACRES	(Non-Native Aquatic Plants*)	
					Excess Algal Growth	2358
					Mercury in Fish Tissue	33880
Cedar Meadow Pond	MA42009	Leicester	140	ACRES	(Non-Native Aquatic Plants*)	
					Aquatic Plants (Macrophytes)	2359
Dresser Hill Pond	MA42014	Charlton	8	ACRES	Turbidity	2360
Dutton Pond	MA42015	Leicester	6	ACRES	Nutrient/Eutrophication Biological Indicators	2354
					Phosphorus (Total)	2354

Massachusetts Category 4a Waters
"TMDL is completed"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	POLLUTANTS ADDRESSED BY TMDL	EPA TMDL NUMBER
Gore Pond	MA42018	Dudley/Charlton	169	ACRES	(Non-Native Aquatic Plants*)	
					Excess Algal Growth	2361
					Oxygen, Dissolved	2361
					Turbidity	2361
Granite Reservoir	MA42019	Charlton	207	ACRES	(Non-Native Aquatic Plants*)	
					Aquatic Plants (Macrophytes)	2362
Greenville Pond	MA42023	Leicester	31	ACRES	Turbidity	2355
Hudson Pond	MA42029	Oxford/Sutton	15	ACRES	Aquatic Plants (Macrophytes)	2363
Jones Pond	MA42030	Charlton/Spencer	30	ACRES	Aquatic Plants (Macrophytes)	2364
Larner Pond	MA42068	Dudley	27	ACRES	(Non-Native Aquatic Plants*)	
					Aquatic Plants (Macrophytes)	2365
Lowes Pond	MA42034	Oxford	33	ACRES	Aquatic Plants (Macrophytes)	2366
McKinstry Pond	MA42035	Oxford	16	ACRES	Aquatic Plants (Macrophytes)	2367
Mosquito Pond	MA42060	Dudley	11	ACRES	Aquatic Plants (Macrophytes)	2374
New Pond	MA42037	Dudley	33	ACRES	Aquatic Plants (Macrophytes)	2368
Peter Pond	MA42042	Dudley	42	ACRES	Oxygen, Dissolved	2369
					Phosphorus (Total)	2369
Pierpoint Meadow Pond	MA42043	Dudley/Charlton	95	ACRES	(Non-Native Aquatic Plants*)	
					Aquatic Plants (Macrophytes)	2370
Pikes Pond	MA42044	Charlton	28	ACRES	Turbidity	2371
Rochdale Pond	MA42048	Leicester	43	ACRES	Nutrient/Eutrophication Biological Indicators	2356
Shepherd Pond	MA42051	Dudley	16	ACRES	Aquatic Plants (Macrophytes)	2373
Wallis Pond	MA42062	Dudley	24	ACRES	Aquatic Plants (Macrophytes)	2375
					Oxygen, Dissolved	2375
Housatonic						
Stockbridge Bowl	MA21105	Stockbridge	383.495	ACRES	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					Mercury in Fish Tissue	33880
Ipswich						
Hood Pond	MA92025	Ipswich/Topsfield	67.446	ACRES	Mercury in Fish Tissue	33880
Mill Pond	MA92041	Burlington	59.084	ACRES	Mercury in Fish Tissue	33880
Islands						

Massachusetts Category 5 Waters
"Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
French River	MA42-03	Headwaters, outlet Greenville Pond, Leicester to the outlet of Thayer Pond, Oxford (excluding approximately 0.6 miles through Rochdale Pond segment MA42048) (through former pond segments Texas Pond MA42058 and Thayers Pond MA42059).	3.8	MILES	Aquatic Plants (Macrophytes)	2357
					Mercury in Fish Tissue	
					Phosphorus (Total)	
					Turbidity	
French River	MA42-04	From dam just upstream of Clara Barton Road, Oxford, to dam at North Village, Webster/Dudley.	9.6	MILES	Mercury in Fish Tissue	
French River	MA42-05	Dam at North Village, Webster/Dudley to Webster WWTP outfall, Webster/Dudley.	2.4	MILES	(Debris/Floatables/Trash*)	
					(Other flow regime alterations*)	
					Aquatic Macroinvertebrate Bioassessments	
					Fecal Coliform	
French River	MA42-06	Webster WWTP outfall, Webster/Dudley to state line, Dudley, MA/Thompson,CT.	1	MILES	(Debris/Floatables/Trash*)	
					Aquatic Macroinvertebrate Bioassessments	
					Fecal Coliform	
					Other	
					Sediment Screening Value (Exceedence)	
					Taste and Odor	
					Turbidity	
Grindstone Brook	MA42-18	Headwaters outlet Henshaw Pond, Leicester to inlet Rochdale Pond, Leicester.	2.3	MILES	Escherichia coli	
Little River	MA42-13	Headwaters, outlet Pikes Pond, Charlton to inlet Buffumville Lake, Charlton (formerly part of segment MA42-09).	3.5	MILES	Aquatic Macroinvertebrate Bioassessments	
					Oxygen, Dissolved	
Sucker Brook	MA42-15	Headwaters, outlet Nipmuck Pond, Webster to inlet Club Pond, Webster	1.7	MILES	Aquatic Macroinvertebrate Bioassessments	
					Escherichia coli	
Housatonic						
East Branch Housatonic River	MA21-01	Outlet of Muddy Pond, Washington to the outlet of Center Pond, Dalton.	11.251	MILES	Fecal Coliform	
					PCB in Fish Tissue	
East Branch Housatonic River	MA21-02	Outlet of Center Pond, Dalton to confluence with the Housatonic River, Pittsfield.	8.019	MILES	Fecal Coliform	
					PCB in Fish Tissue	
Goodrich Pond	MA21042	Pittsfield	15.355	ACRES	PCB in Fish Tissue	
Housatonic River	MA21-04	Confluence of Southwest Branch Housatonic River and West Branch Housatonic River, Pittsfield to outlet of Woods Pond, Lee/Lenox (pond was formerly segment MA21120).	12.322	MILES	(Non-Native Aquatic Plants*)	
					Fecal Coliform	
					PCB in Fish Tissue	
					Polychlorinated biphenyls	

Category 3 waters listed alphabetically by major watershed
"No uses assessed"

Water Body	Segment ID	Description	Size	Units
Putnam Pond	MA42046	Charlton.	20.00	Acres
Robinson Pond	MA42047	Oxford.	99.00	Acres
Slaters Pond	MA42053	Oxford.	105.00	Acres
Snow Pond	MA42054	Charlton.	1.00	Acres
Stiles Reservoir	MA42055	Spencer/Leicester.	309.00	Acres
Town Meadow Brook	MA42-02	Headwaters, outlet Dutton Pond, Leicester to mouth at inlet Greenville Pond, Leicester.	1.90	Miles
Unnamed Tributary	MA42-12	Unnamed tributary to Wellington Brook, perennial portion from Depot Road, Oxford to confluence with Wellington Brook, Oxford.	0.20	Miles
Unnamed Tributary	MA42-19	Unnamed tributary to the French River on the 1982 USGS quad as 'Lowes Brook' , from the outlet of Lowes Pond, Oxford to mouth at confluence with French River, Oxford.	1.30	Miles
Unnamed Tributary	MA42-20	Unnamed tributary to South Fork locally known as 'Potters Brook', from outlet of Old Mill Pond Dam ((NAT ID: MA01833), Charlton to mouth at confluence with South Fork, Charlton.	0.90	Miles
Watson Millpond	MA42063	Spencer.	2.00	Acres
Wee Laddie Pond	MA42065	Charlton.	6.00	Acres
Housatonic				
Anthony Brook	MA21-10	Headwaters, outlet Anthony Pond, Dalton to mouth at confluence with Wahconah Falls Brook, Dalton.	2.60	Miles
Ashley Lake	MA21003	Washington.	94.00	Acres
Card Pond	MA21015	West Stockbridge.	11.00	Acres
Churchill Brook	MA21-34	Headwaters, perennial portion in the Pittsfield State Forest, Hancock (north of Honwee Mountain, Lanesborough) to mouth at inlet Onota Lake, Pittsfield.	2.80	Miles
Cleveland Brook Reservoir	MA21019	Hinsdale.	155.00	Acres
Cookson Pond	MA21021	New Marlborough.	67.00	Acres
Crane Lake	MA21025	West Stockbridge.	27.00	Acres
East Indies Pond	MA21029	New Marlborough.	72.00	Acres
Farnham Reservoir	MA21033	Washington.	41.00	Acres
Fenton Brook	MA21-35	Headwaters south of Jug End Road, Egremont (west of Mt. Bushnell, Sheffield), to mouth at confluence with Karner Brook, Egremont.	2.40	Miles
Hayes Pond	MA21051	Otis.	46.00	Acres
Mill Pond	MA21069	Egremont.	10.00	Acres
Seekonk Brook	MA21-22	Headwaters, outlet of small impoundment east of West Road, Alford to mouth at confluence with the Green River, Great Barrington.	4.80	Miles
Tyler Brook	MA21-32	Headwaters, northwest of Driscoll Road, Windsor to mouth at confluence with Windsor Brook, Windsor.	2.60	Miles
Unnamed Tributary	MA21-24	Headwaters, outlet Mill Pond, Egremont to mouth at confluence with Hubbard Brook, Egremont.	1.50	Miles
Upper Sackett Reservoir	MA21113	Hinsdale.	19.00	Acres
Welch Brook	MA21-33	Headwaters, northeast of Tully Mountain, Hinsdale to mouth at confluence with unnamed tributary to Plunkett Reservoir, Hinsdale.	1.70	Miles
Windsor Reservoir	MA21119	Hinsdale/Windsor.	74.00	Acres
Hudson: Hoosic				
Hemlock Brook	MA11-09	Headwaters, perennial portion, south of Route 2 in the Taconic Trail State Park, Williamstown to mouth at confluence with the Hoosic River, Wiliamstown.	7.10	Miles

Category 4a waters listed alphabetically by major watershed
"TMDL is completed"

Water Body	Segment ID	Description	Size	Units	Pollutants Addressed By TMDL	EPA TMDL No.
Boons Pond	MA82011	Stow/Hudson.	174.00	Acres	(Non-Native Aquatic Plants*)	
					Algae	2353
					Mercury in Fish Tissue	33880
Nutting Lake	MA82124	[West Basin] Billerica.	51.00	Acres	Mercury in Fish Tissue	33880
Sudbury Reservoir	MA82106	Southborough/Marlborough.	1181.00	Acres	Mercury in Fish Tissue	33880
Walden Pond	MA82109	Concord.	63.00	Acres	Mercury in Fish Tissue	33880
Warners Pond	MA82110	Concord.	59.00	Acres	(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	33880
Connecticut						
Lake Warner	MA34098	Hadley.	65.00	Acres	(Non-Native Aquatic Plants*)	
					Algae	651
					Dissolved Oxygen	651
					Phosphorus, Total	651
					Turbidity	651
Lake Wyola	MA34103	Shutesbury.	124.00	Acres	Nutrient/Eutrophication Biological Indicators	653
					Phosphorus, Total	653
Leverett Pond	MA34042	Leverett.	91.00	Acres	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					(Non-Native Aquatic Plants*)	
					Nutrient/Eutrophication Biological Indicators	675
Deerfield						
Ashfield Pond	MA33001	Ashfield.	38.00	Acres	Mercury in Fish Tissue	42397
Plainfield Pond	MA33017	Plainfield.	60.00	Acres	Mercury in Fish Tissue	33880
Farmington						
Otis Reservoir	MA31027	Otis/Tolland/Blandford.	989.00	Acres	Mercury in Fish Tissue	33880
French						
Buffumville Lake	MA42005	Charlton/Oxford.	199.00	Acres	(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	33880
Dresser Hill Pond	MA42014	Charlton.	8.00	Acres	Turbidity	2360
Dutton Pond	MA42015	Leicester.	6.00	Acres	Nutrient/Eutrophication Biological Indicators	2354
					Phosphorus, Total	2354
Gore Pond	MA42018	Dudley/Charlton.	169.00	Acres	(Non-Native Aquatic Plants*)	
					Algae	2361
					Dissolved Oxygen	2361
					Turbidity	2361
Greenville Pond	MA42023	Leicester.	31.00	Acres	Turbidity	2355

Category 4a waters listed alphabetically by major watershed
"TMDL is completed"

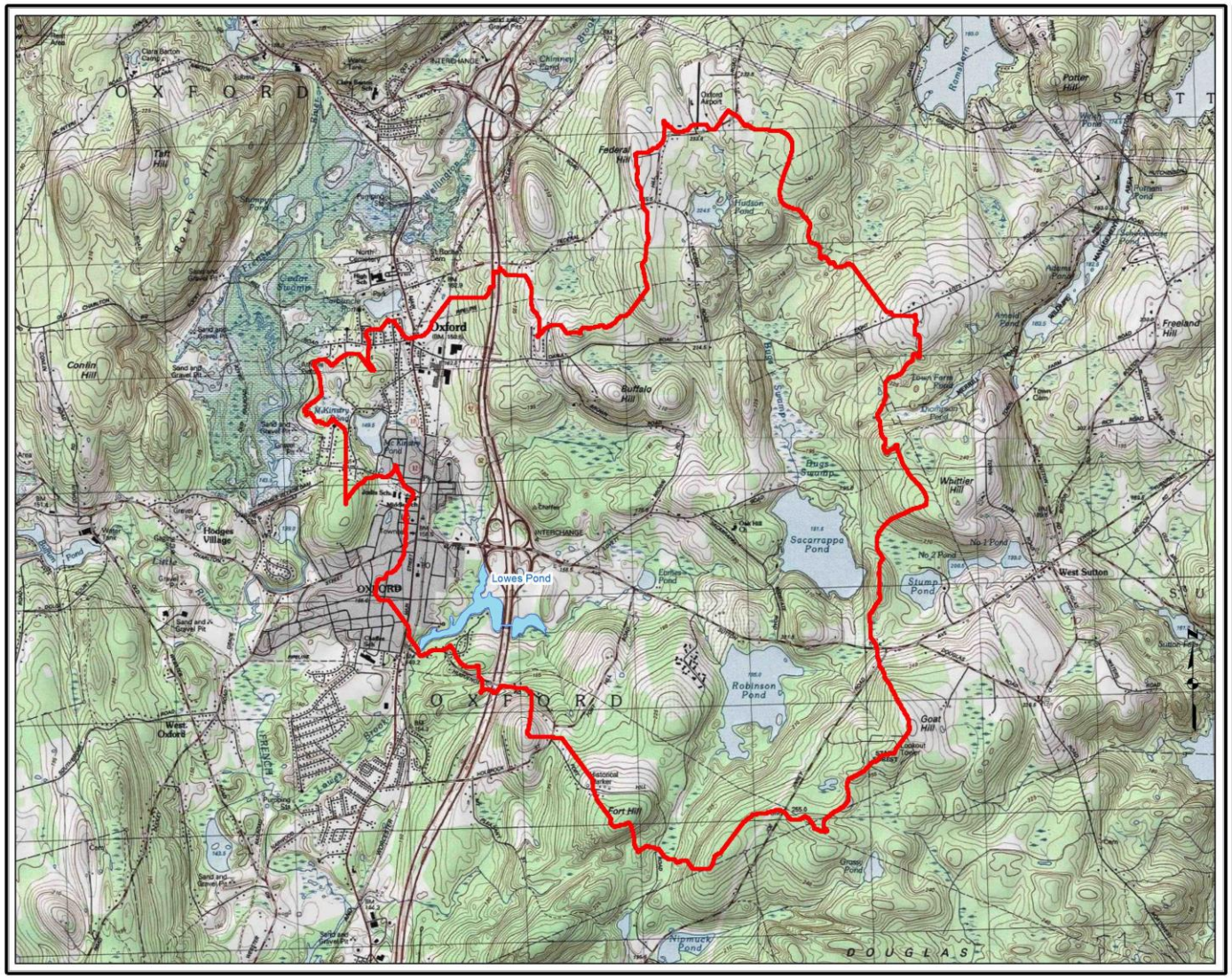
Water Body	Segment ID	Description	Size	Units	Pollutants Addressed By TMDL	EPA TMDL No.
Hudson Pond	MA42029	Oxford/Sutton.	15.00	Acres	(Aquatic Plants (Macrophytes)*)	
					Nutrient/Eutrophication Biological Indicators	2363
Jones Pond	MA42030	Charlton/Spencer.	30.00	Acres	(Aquatic Plants (Macrophytes)*)	
					Nutrient/Eutrophication Biological Indicators	2364
Lowes Pond	MA42034	Oxford.	33.00	Acres	Nutrient/Eutrophication Biological Indicators	2366
Mckinstry Pond	MA42035	Oxford.	16.00	Acres	Nutrient/Eutrophication Biological Indicators	2367
Pikes Pond	MA42044	Charlton.	28.00	Acres	Turbidity	2371
Rochdale Pond	MA42048	Leicester.	43.00	Acres	Nutrient/Eutrophication Biological Indicators	2356
Wallis Pond	MA42062	Dudley.	24.00	Acres	(Aquatic Plants (Macrophytes)*)	
					Dissolved Oxygen	2375
					Nutrient/Eutrophication Biological Indicators	2375
Housatonic						
Pontoosuc Lake	MA21083	Lanesborough/Pittsfield.	500.00	Acres	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					(Non-Native Aquatic Plants*)	
					Mercury in Fish Tissue	33880
Stockbridge Bowl	MA21105	Stockbridge.	384.00	Acres	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					Mercury in Fish Tissue	33880
Ipswich						
Hood Pond	MA92025	Ipswich/Topsfield.	68.00	Acres	Mercury in Fish Tissue	33880
Mill Pond	MA92041	Burlington.	59.00	Acres	Mercury in Fish Tissue	33880
Islands						
Edgartown Great Pond	MA97-17	excluding Jacobs Pond (PALIS# 97038) Edgartown, Martha's Vineyard.	1.35	Square Miles	Estuarine Bioassessments	64380
					Nitrogen, Total	64380
					Nutrient/Eutrophication Biological Indicators	64380
Farm Pond	MA97-30	Oak Bluffs.	0.05	Square Miles	Dissolved Oxygen	64662
					Estuarine Bioassessments	64662
					Nitrogen, Total	64662
					Nutrient/Eutrophication Biological Indicators	64662
Gibbs Pond	MA97028	Nantucket.	34.00	Acres	Mercury in Fish Tissue	33880

Category 5 waters listed alphabetically by major watershed
The 303(d) List – "Waters requiring a TMDL"

Water Body	Segment ID	Description	Size	Units	Impairment	EPA TMDL No.
Cranberry Pond Brook	MA31-21	Headwaters, outlet Cranberry Pond, Tolland to mouth at confluence with Slocum Brook, Tolland.	1.60	Miles	Lack of a coldwater assemblage	
Palmer Brook	MA31-29	Headwaters, outlet Palmer Brook Dam (NATID: MA00205), Becket to mouth at inlet Ward Pond, Becket.	2.10	Miles	Lack of a coldwater assemblage	
Pond Brook	MA31-33	Headwaters, outlet Noyes Pond, Tolland to mouth at confluence with Babcock Brook, Tolland.	2.00	Miles	Lack of a coldwater assemblage	
Shaw Pond	MA31036	Becket/Otis.	80.00	Acres	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					Dissolved Oxygen	
Spectacle Pond Brook	MA31-27	Headwaters, south of West Center Road, Otis to mouth at inlet Upper Spectacle Pond, Otis.	1.50	Miles	Lack of a coldwater assemblage	
Thomas Brook	MA31-06	Headwaters, outlet Thomas Pond, Becket to mouth at confluence with unnamed tributary to Hayden Pond, Otis.	0.80	Miles	Lack of a coldwater assemblage	
Upper Spectacle Pond	MA31044	Sandisfield/Otis.	53.00	Acres	Dissolved Oxygen	
West Branch Farmington River	MA31-01	Headwaters, outlet Hayden Pond, Otis to the MA/CT border in the Colebrook Reservoir, Sandisfield/Tolland.	16.10	Miles	Lack of a coldwater assemblage	
					Temperature	
York Lake	MA31052	New Marlborough.	29.00	Acres	Dissolved Oxygen	
French						
Burncoat Brook	MA42-07	Headwaters, outlet Bouchard Pond, Leicester to mouth at confluence with Town Meadow Brook, Leicester (through former pond segment Ballard Hill Pond MA42069).	1.00	Miles	Benthic Macroinvertebrates	
					Escherichia Coli (E. Coli)	
Carbuncle Pond	MA42008	Oxford.	11.00	Acres	Harmful Algal Blooms	
French River	MA42-03	Headwaters, outlet Greenville Pond, Leicester to the outlet of Thayers Pond, Oxford (excluding approximately 0.6 miles through Rochdale Pond segment MA42048) (through former pond segments Texas Pond MA42058 and Thayers Pond MA42059).	3.80	Miles	Mercury in Fish Tissue	
French River	MA42-04	From dam (NAT ID: MA01946) just upstream of Clara Barton Road, Oxford, to dam (NAT ID: MA00108) at North Village, Webster/Dudley.	9.60	Miles	Mercury in Fish Tissue	
French River	MA42-05	Dam (NAT ID: MA00108) at North Village, Webster/Dudley to Webster WWTP outfall (NPDES: MA0100439) , Webster/Dudley.	2.40	Miles	(Flow Regime Modification*)	
					Benthic Macroinvertebrates	

Tighe&Bond
Engineers | Environmental Specialists

ATTACHMENT 2



MASSACHUSETTS watershed·based plans

LOWES POND WATERSHED

WATERSHED BOUNDARY MAP

11/28/2016

Legend

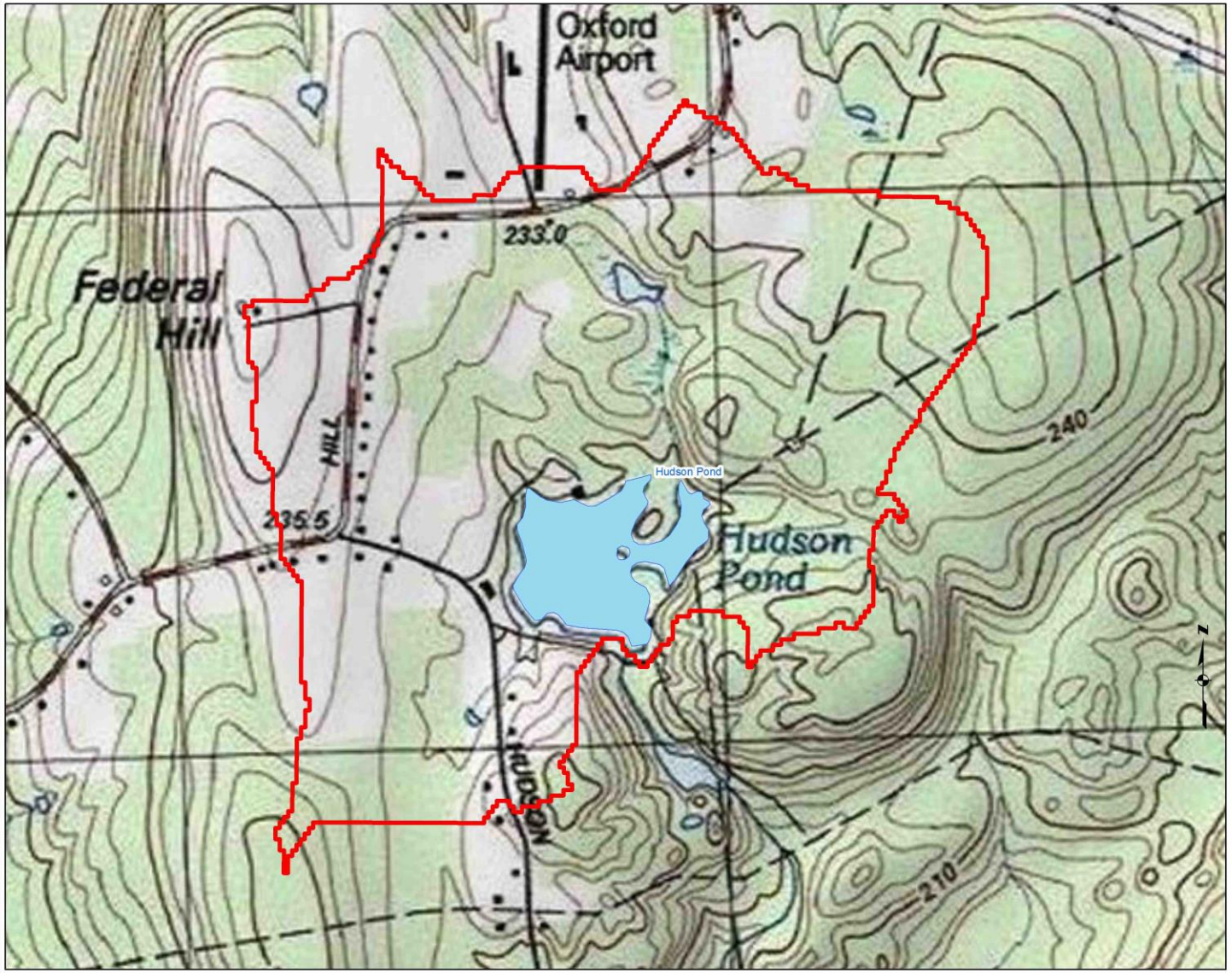
- Watershed Boundary
- Lake/Pond

0.35 0.175 0 0.35

Miles

Geosyntec consultants

MassDEP



MASSACHUSETTS
watershed·based plans

HUDSON POND WATERSHED

WATERSHED BOUNDARY MAP

11/28/2016

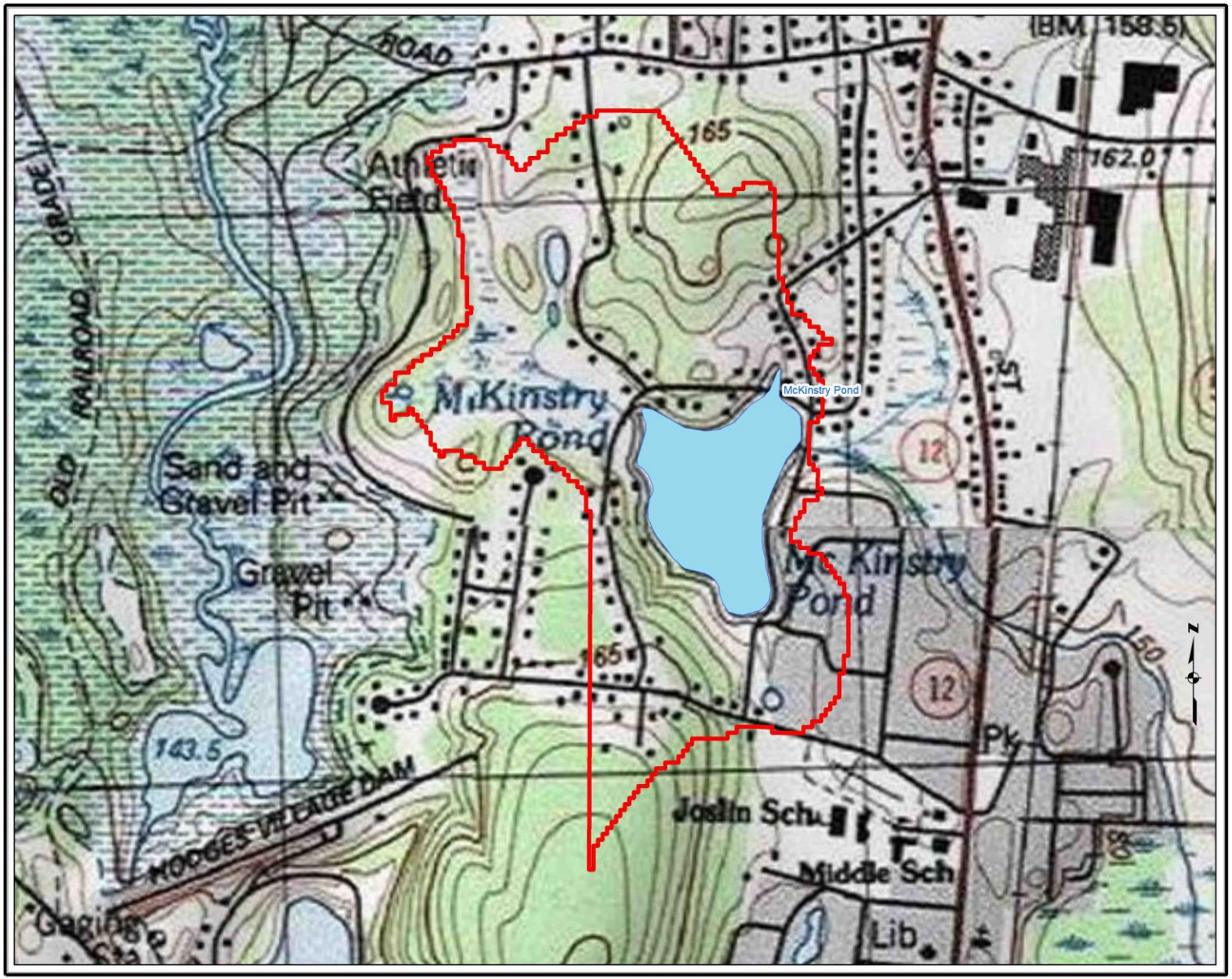
Legend

- Watershed Boundary
- Lake/Pond

0.08 0.04 0 0.08
Miles

Geosyntec
consultants

MassDEP



MASSACHUSETTS watershed·based plans

MCKINSTRY POND WATERSHED

WATERSHED BOUNDARY MAP

11/28/2016

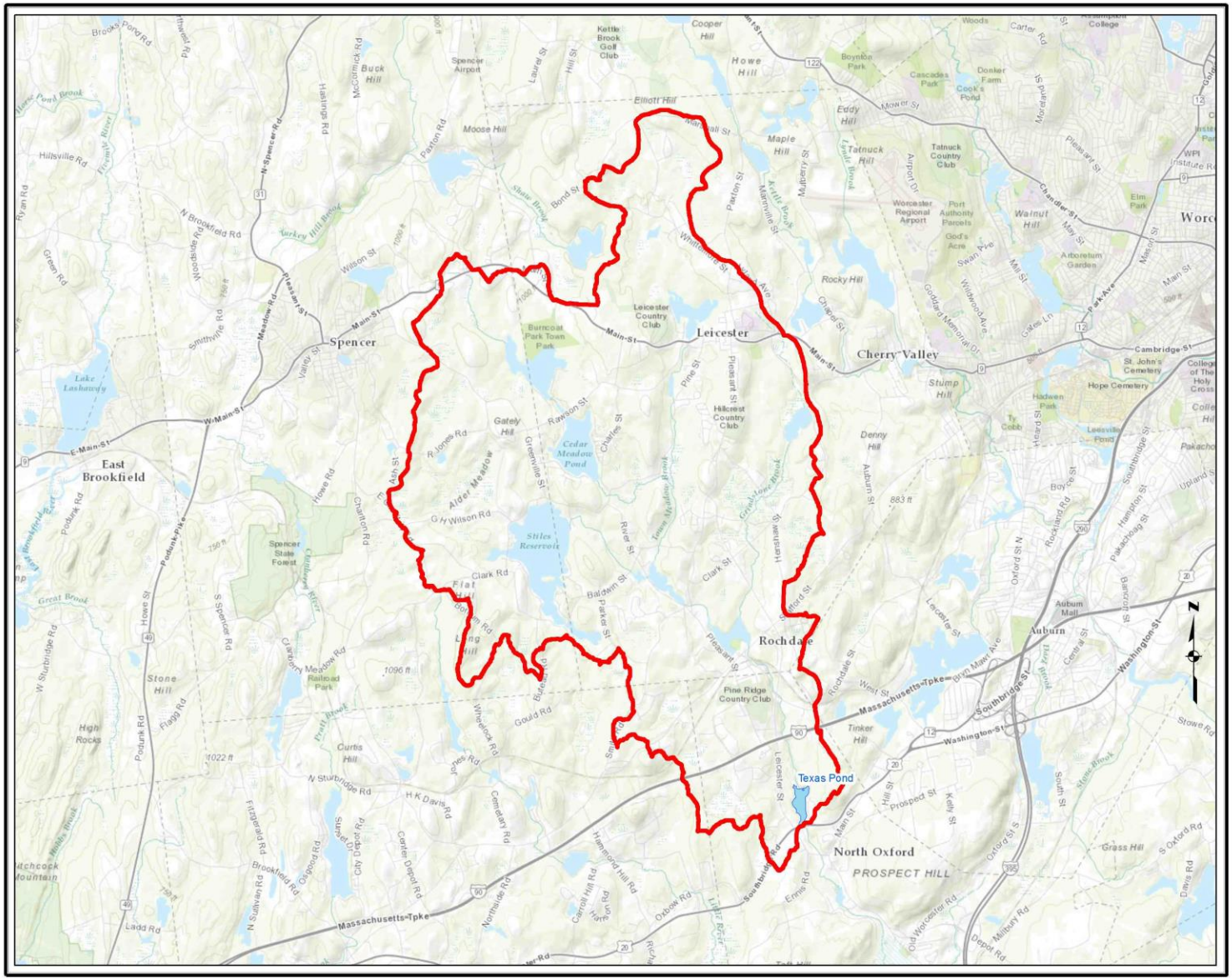
Legend

- Watershed Boundary
- Lake/Pond

0.07 0.035 0 0.07 Miles

Geosyntec consultants

MassDEP



MASSACHUSETTS watershed·based plans

TEXAS POND WATERSHED

WATERSHED BOUNDARY MAP

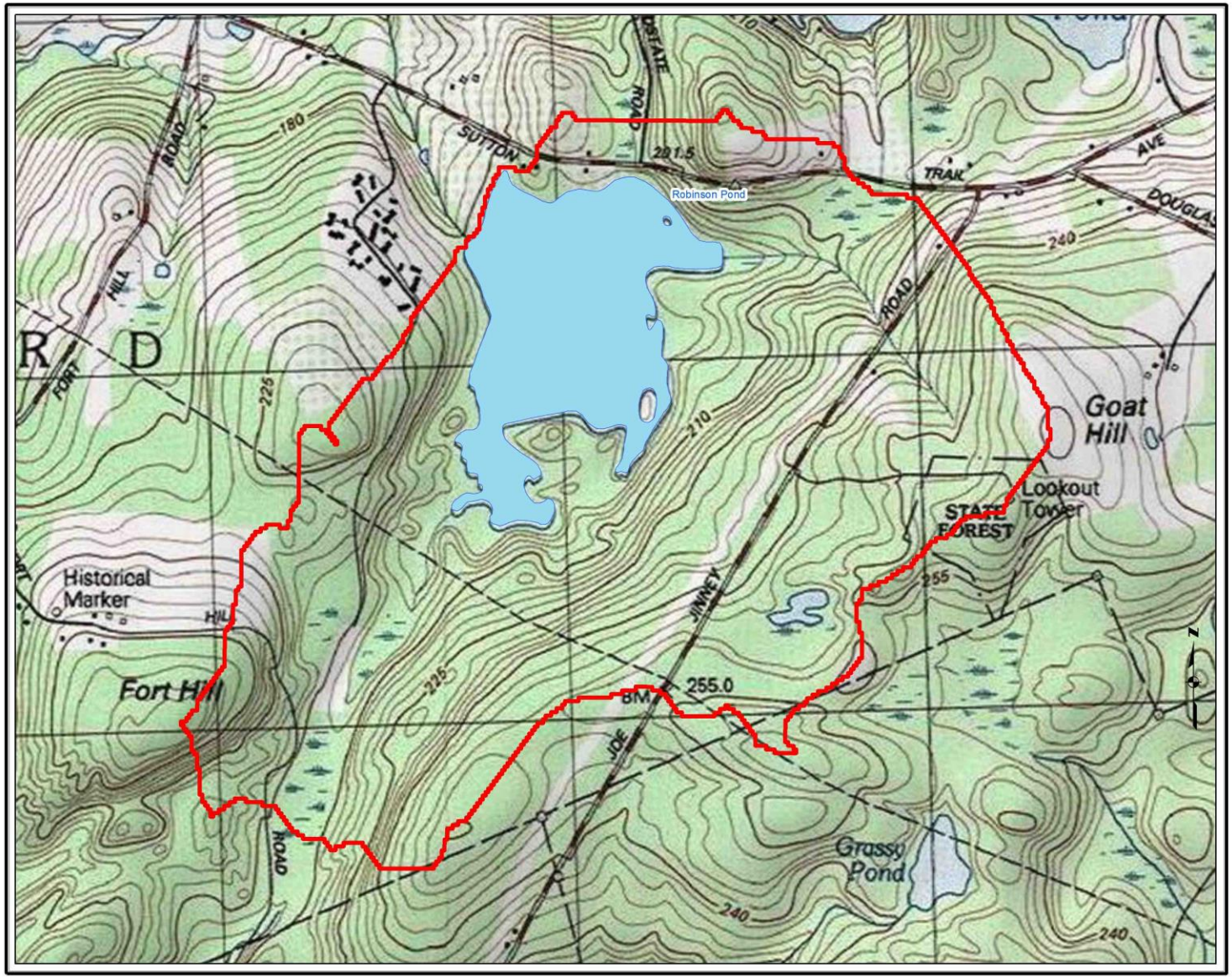
11/28/2016

Legend

- Watershed Boundary
- Lake/Pond

Geosyntec consultants

MassDEP



MASSACHUSETTS watershed·based plans

ROBINSON POND WATERSHED

WATERSHED BOUNDARY MAP

11/28/2016

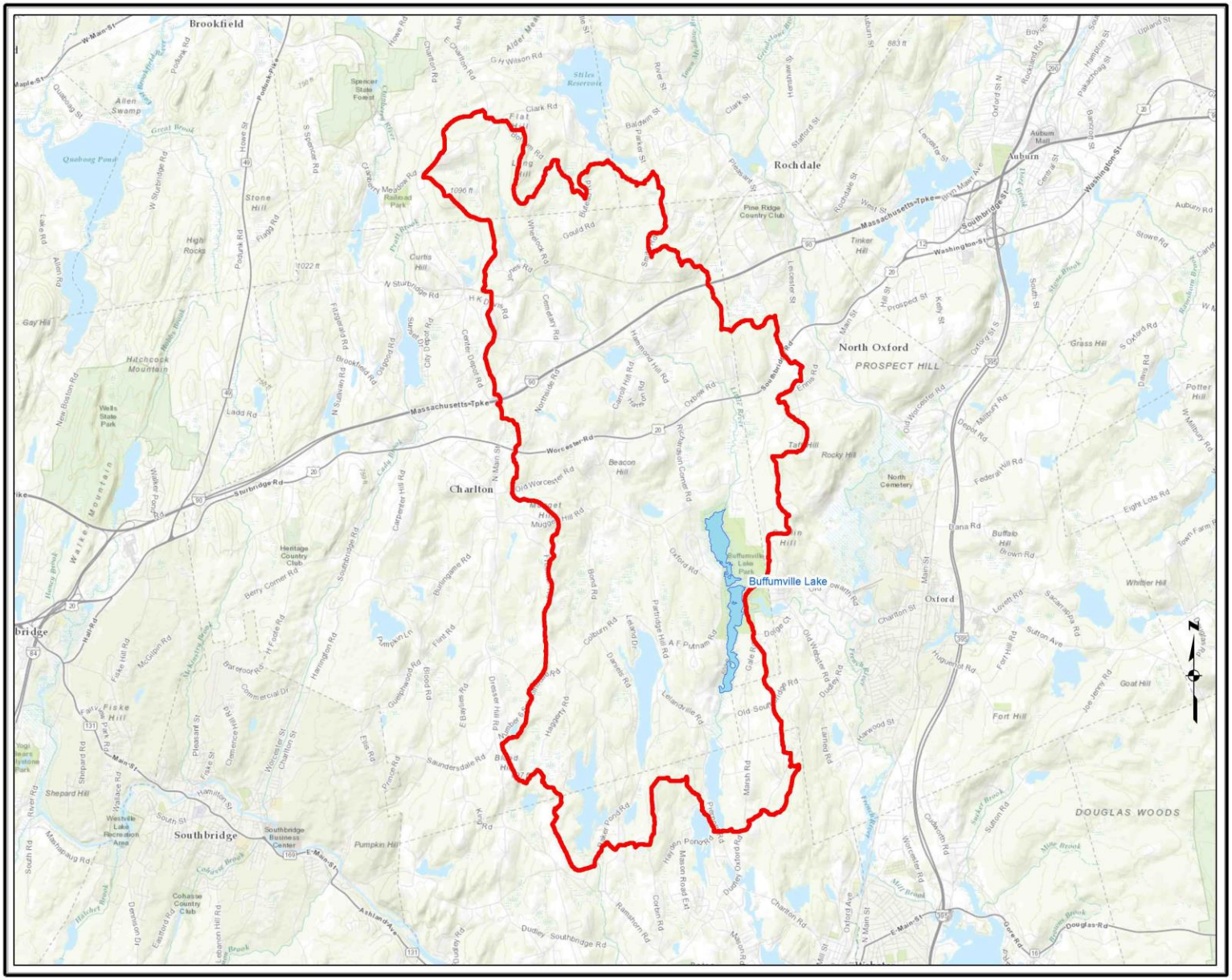
Legend

- Watershed Boundary
- Lake/Pond

0.1 0.05 0 0.1 Miles

Geosyntec consultants

MassDEP



MASSACHUSETTS watershed·based plans

BUFFUMVILLE LAKE WATERSHED

WATERSHED BOUNDARY MAP

11/28/2016

Legend

- Watershed Boundary
- Lake/Pond

0.85 0.425 0 0.85 Miles

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