Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for

Worcester DPW, Water Supply Division

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

PWS Name	Worcester DPW, Water Supply Division
PWS Address	18 East Worcester Street
City/Town	Worcester, Massachusetts
PWS ID Number	2348000
Local Contact	Konstatin Eliadi
Phone Number	(508) 799-1486

Introduction

We are all concerned about the quality of the water we drink. Drinking water may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

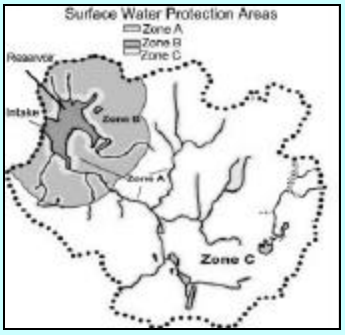
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Glossary
Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/ or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Source Name	*Source ID*	*Susceptibility*
Lynde Brook Reservoir	2348000-01S	High
Holden Reservoir #2	2348000-02S	High
Kendall Reservoir	2348000-03S	High
Pine Hill Reservoir	2348000-04S	High
Quinapoxet Reservoir	2348000-05S	High
Holden Reservoir #1	2348000-06S	High
Kettle Brook Reservoir #1	2348000-07S	High
Kettle Brook Reservoir #2	2348000-08S	High
Kettle Brook Reservoir #3	2348000-09S	High
Kettle Brook Reservoir #4	2348000-10S	High

The Worcester water system is an extensive, complex system utilizing the ten active surface water supply reservoirs listed above. In addition to the ten active reservoirs the city owns two inactive wells that are not covered by this report, the Coal Mine Brook Well and the Shrewsbury Well, that could supply water in case of an emergency .

As part of the Surface Water Treatment Rule (SWTR) requirement, Worcester constructed the Worcester Water Filtration Plant, which, began operating in 1997 and filters all of the City's water supply. Treatment at the plant includes ozonation, coagulation and flocculation, filtration, pH adjustment, disinfection and corrosion control. For more detailed current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at http://www.epa.gov/safewater/ccr1.html.

Section 2: Land Uses in the Protection Areas

The total watershed area for Worcester's reservoirs is approximately 26,000 acres of which 30%, or 8000 acres, is owned by the City of Worcester. The protection area for the reservoirs is a mixture of forest, residential, cropland, pastureland, and transportation uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues include:

1. Zone A Land Uses
2. Residential land uses
3. Aquatic Wildlife
4. Transportation corridors
5. Hazardous Materials Storage and Use
6. Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water

supply protection areas, as seen in Table 2.

1. Zone A Land Uses - The Zone A is the land area within 400 feet of a reservoir and 200 feet of its tributaries. The land uses and activities within the Zone As include: residences with on-site septic systems, above ground and underground storage tanks, roads, railroads, a golf course, recreational activities, and wildlife. Public water systems are responsible for enforcing the prohibition of certain new or expanded land uses within the Zone A, as detailed in 310 CMR 22.20(b).

Zone A Recommendations:

- ✓ Actively monitor new or expanded land uses within the Zone A according to your watershed protocol submitted to DEP.
- ✓ Work with local emergency response teams to practice containment of spills within the Zone A.
- ✓ Control aquatic wildlife within the Zone A.
- ✓ Control stormwater and erosion within the Zone A.
- ✓ Continue regular inspections of the Zone A for illegal dumping and spills.
- ✓ Install additional water supply protection area signs around the Zone A.
- ✓ Work with Providence and Worcester railway to ensure herbicides are not used within the Zone A.
- ✓ Work with power transmission line owners to ensure herbicides are not used within the Zone A.
- ✓ Work with golf club owners to ensure proper use of fertilizers and pesticides within the Zone A.

2. Residential Land Uses – Approximately 8% of the watersheds consist of residential areas. Few areas have public sewers, and so the majority use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

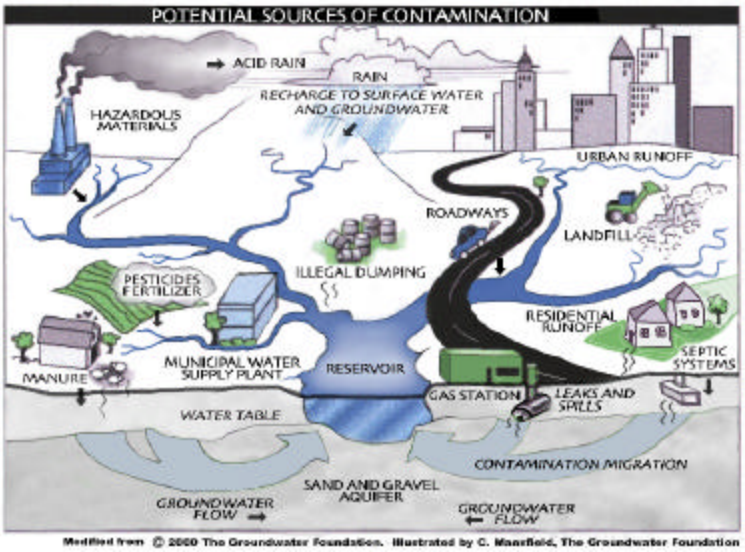


Figure 1: Sample watershed with examples of potential sources of contamination

residential issues.

- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Aquatic Wildlife—Birds, particularly gulls, are attracted to large open bodies of water. Birds may increase coliform levels through the release of fecal matter into the water and may carry other bacteria and viruses. Beaver and muskrat may introduce the pathogens Giardia and Cryptosporidium into water through fecal matter. Because of their constant contact with the water, these aquatic mammals represent a potential threat to drinking water reservoirs. Appendix A contains a DEP fact sheet titled *What You Need To Know About Microbial Contamination*.

Aquatic Wildlife Recommendations:

- ✓ Continue to monitor wildlife populations in and around reservoirs.
- ✓ Where necessary, discourage and control aquatic wildlife. See http://mass.gov/dep/brp/dws/protect.htm for guidance and permits.

4. Transportation Corridors – Portions of Routes 122, 122a, 68, 62, 56 and 31 run through the watersheds for Worcester's reservoirs. Local roads are common throughout the watersheds areas of all the reservoirs. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include contaminants from automotive leaks, maintenance, washing, or accidents.

An active rail line owned by the Providence and Worcester railroad runs along the western bank of the Quinapoxit Reservoir and intersects the watershed on its route through Holden. Railway maintenance and threats from accidents and spills all are all threats to water supplies.

Transportation Corridor Recommendations:

- ✓ Regularly inspect watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule

(Continued on page 7)

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

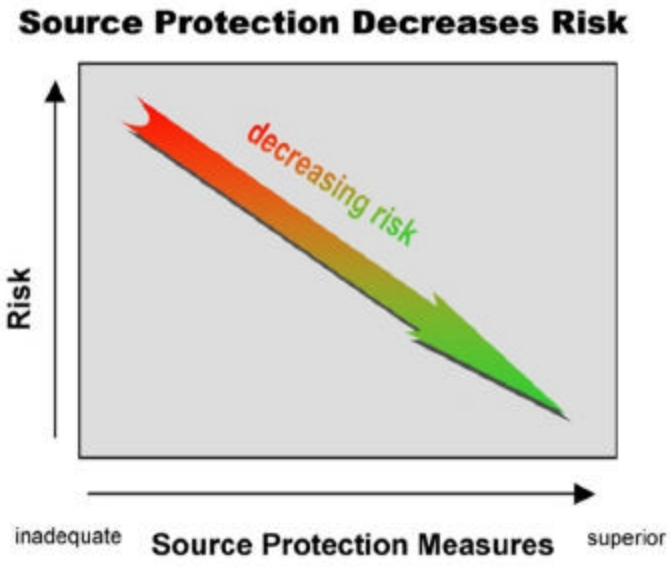


Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watersheds

Activities	Quantity	Watershed Source ID#	Threat*	Potential Source of Contamination
Agricultural				
Dairy Farms	Few	04S & 05S	H	Manure (microbial contaminants): improper handling
Fertilizer Storage or Use	Several	01S, 04S, 05S,	M	Fertilizers: leaks, spills, improper handling, or over-application
Forestry Operation	Few	All	M*	Equipment maintenance materials: leaks, spills, or improper handling; erosion
Livestock Operations	Few	04S &05S	H	Manure (microbial contaminants): improper handling
Landscaping	Few	05S	M	Fertilizers and pesticides: leaks, spills, improper handling, or over-application
Manure Storage or Spreading	Few	04S &05S	H	Manure (microbial contaminants): improper handling
Nurseries	Few	01S, 05S	M	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling, or over-application
Pesticide Storage or Use	Few	01S, 04S, 05S	H	Pesticides: leaks, spills, improper handling, or over-application
Commercial				
Airports	One	01S	M	Fuels, de-icers, salt, and other hazardous chemicals: spills, leaks, or improper handling
Auto Repair Shops	Few	04S, 10S	M	Automotive fluids, vehicle paints and solvents: spills, leaks, or improper handling
Cemeteries	Few	04S, 07S	L	Over-application of pesticides: leaks, spills, improper handling; historic embalming fluids
Golf Courses	Two	01S, 05S, 10S	M	Fertilizers or pesticides: over-application or improper handling
Railroad Tracks And Yards	One	05S	H	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills

* See Table 2 Notes on page 7

Table 2: Land Use in the Watersheds (continued)

Activities	Quantity	Watershed Source ID#	Threat*	Potential Source of Contamination
Commercial				
Repair Shops (Engine, Appliances, Etc.)	Few	04S, 05S &	M	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage
Sand And Gravel Mining/Washing	One	05S	M	Heavy equipment, fuel storage, clandestine dumping: spills or leaks
Industrial				
Asphalt, Coal Tar, And Concrete Plants	One	05S	M	Hazardous chemicals and wastes: spills, leaks, or improper handling or storage
Residential				
Fuel Oil Storage (at residences)	Many	All	M	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	Many	All	M	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Many	All	M	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Aquatic Wildlife	Few	All	H	Microbial contaminants
Landfills and Dumps	One	07S	H	Seepage of leachate
Oil or Hazardous Material Sites	Three	04S, 10S	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	One	04S	M	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Transmission Line Rights-of-Way - Type: Railroad and Power lines	One	01S, 07S	H	Corridor maintenance pesticides: over-application or improper handling; construction
Stormwater Drains/ Retention Basins	Many	All	H	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	Many	All	H	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Large Quantity Hazardous Waste Generators	One	01S	H	Hazardous materials and waste: spills, leaks, or improper handling or storage

* See Table 2 Notes on page 7

Table 2 Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

*** THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

(Continued from page 4)

requiring some communities to complete stormwater mapping.

- ✓ Continue to work with the railroad to coordinate emergency response and rail bed maintenance activities.

5. Hazardous Materials and Storage and Use - A small number of commercial or industrial land uses exist within the watershed. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to the surface, a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate watershed businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floordrain requirements. See brochure "Industrial Floor Drains" for more information.

6. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the City does not have water supply protection controls that meet DEP's Surface Water Protection regulations 310 CMR 22.20 (b) and (c). A Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

- ✓ Establish a protection team of stakeholders from watershed communities, and refer them to http://mass.gov/dep/brp/dws/protect.htm for a copy of DEP's guidance, "Developing a Surface Water Supply Protection Plan".

(Continued on page 8)

Top 5 Reasons to Develop a Local Surface Water Protection Plan

❶ Reduces Risk to Human Health

❷ Cost Effective! Reduces or Eliminates Costs Associated With:

- Increased monitoring and treatment
- Water supply clean up and remediation
- Replacing a water supply
- Purchasing water

❸ Supports municipal bylaws, making them less likely to be challenged

❹ Ensures clean drinking water supplies for future generations

❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

- ✓ Continue to encourage the watershed communities without local controls to adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see http://mass.gov/dep/brp/dws/protect.htm.
- ✓ Keep your Surface Water Supply Protection Plan current.

Other land uses and activities within the Protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, Worcester's watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.
Worcester is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Ownership of 30% of the watersheds, especially the Zone As around the banks of all the reservoirs.
- Performing round-the-clock security patrols of the watershed.
- Actively monitoring and controlling wildlife populations.
- Monitoring of tributary water quality as a means of early detection of larger problems.
- Initiating the process to develop a surface water protection plan

Source Protection Recommendations:
To better protect the sources for the future:

- ✓ Continue to inspect the Zone A regularly, and when feasible, remove any non-water supply activities.
- ✓ Establish a watershed protection committee of members representing the whole watershed.
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, http://commpres.env.state.ma.us/.
- ✓ Educate residents within the watersheds on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your watershed and to cooperate on responding to spills or accidents.
- ✓ Continue to update and implement your Surface Water Supply Protection Plan.

For More Information

Contact Josephine Yemoh-Ndi in DEP's Worcester Office at (508) 849-4030 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier and town boards.

Conclusions:
These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Source Protection Grant Program provides funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a

(Continued on page 10)

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	**NO**	Target land acquisition at the most vulnerable Zone A areas.
Is the Zone A posted with "Public Drinking Water Supply" Signs?	**YES**	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	**YES**	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone A?	**NO**	Continue monitoring non-water supply activities in Zone As.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C?	**NO**	Refer to www.state.ma.us/dep/brp/dws/ for model bylaws, health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	**NO**	Work with neighboring municipalities to include the watershed in their protection controls.
Planning		
Does the PWS have a local surface water supply protection plan?	**NO**	Develop a surface water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/.
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	**YES**	Augment plan by developing a joint emergency response plans with fire departments, Boards of Health, DPWs, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	**NO**	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	**YES/NO**	Encourage local regulatory officials in watershed communities to perform inspections. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	**NO**	Aim additional efforts at residential, commercial, industrial and municipal uses within the watershed.

new Request for Response (RFR) for the grant program.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: http://mass.gov/dep/brp/mf/mfpubs.htm.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

A. Protection Recommendations
B. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
C. Additional Documents on Source Protection

Appendix A: Standard Recommendations

Land Use	Potential Contaminant Sources*	Recommendation
Agricultural		
Dairy Farms	Manure (microbial contaminants): improper handling	Dairy farms to encourage the use of a farm plan that includes BMPs for proper manure storage and management.
Fertilizer Storage or Use	Fertilizers: leaks, spills, improper handling, or over-application	Facility owners/operators to ensure BMPs are in place for proper storage, and application of fertilizers.
Forestry Operation	Herbicides or pesticides, equipment maintenance materials: leaks, spills, or improper handling; road building	Forestry owners/operators to encourage the implementation of a forestry plan that includes BMPs herbicides, pesticides, construction, and equipment maintenance.
Livestock Operations	Manure (microbial contaminants): improper handling	Livestock operations to ensure that BMPs are in place for proper manure storage and management.
Landscaping	Fertilizers and pesticides: leaks, spills, improper handling, or over-application	Landscapers to ensure proper storage, handling, and application of pesticides.
Manure Storage or Spreading	Manure (microbial contaminants): improper handling	Farmers to encourage the use of a farm plan that includes BMPs for the management, storage, and application of manure.
Nurseries	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling, or over-application	Nurseries to ensure BMPs are in place for the proper storage, handling, and application of pesticides, fertilizers, and other chemicals.
Pesticide Storage or Use	Pesticides: leaks, spills, improper handling, or over-application	Facility owners/operators to ensure that BMPs are in place for proper storage, handling, and application of pesticides.
Commercial		
Airports	Fuels, de-icers, salt, and other hazardous chemicals: spills, leaks, or improper handling	Airport authorities to ensure that BMPs are in place for the storage, handling, and use of hazardous chemicals.
Body Shops	Vehicle paints, solvents, and primer products: improper management	Body shops to ensure BMPs are in place for the proper storage, labeling, management, and disposal of paints, solvents, and other chemicals.
Gas Stations	Automotive fluids and fuels: spills, leaks, or improper handling or storage	Gas stations to ensure BMPs are in place for the proper storage and handling of fuel and automotive fluids.
Service Stations/ Auto Repair Shops	Automotive fluids and solvents: spills, leaks, or improper handling	Service stations to ensure BMPs are in place for the proper storage, handling, and disposal of solvents and automotive fluids.
Cemeteries	Over-application of pesticides: leaks, spills, improper handling; historic embalming fluids	Cemeteries to ensure that BMPs are in place for the application of pesticides.
Golf Courses	Fertilizers or pesticides: over-application or improper handling	Golf courses to ensure that BMPs are in place for the handling and application of fertilizers and pesticides.
Paint Shops	Paints, solvents, other chemicals: spills, leaks, or improper handling or storage	Paint shops to ensure that BMPs are in place for the handling, storage, and disposal of solvents, paints, and other chemicals.
Railroad Tracks And Yards	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills	Railroads to review Yearly Operating Plans to ensure that BMPs are in place to manage herbicide application in water supply protection areas.
Repair Shops (Engine, Appliances, Etc.)	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage	Repair shops to ensure that BMPs are in place for the handling, storage, and disposal of engine fluids, lubricants, and solvents.
Sand And Gravel Mining/Washing	Heavy equipment, fuel storage, clandestine dumping: spills or leaks	Sand and gravel operations to ensure that BMPs are in place for fuel storage and the prevention of clandestine dumping.

Industrial		
Asphalt, Coal Tar, And Concrete Plants	Hazardous chemicals and wastes: spills, leaks, or improper handling or storage	Asphalt, coal tar, and concrete plants to ensure that BMPs are in place for the handling, storage, and disposal of hazardous chemicals and wastes.
Hazardous Materials Storage	Hazardous materials: spills, leaks, or improper handling or storage	Facilities with hazardous materials storage to ensure that BMPs are in place for the handling and storage of hazardous materials.
Machine/Metalworking Shops	Solvents and metal tailings: spills, leaks, or improper handling	Machine/metalworking shops to ensure that BMPs are in place for the handling, storage, and disposal of solvents and metal tailings.
Residential		
Fuel Oil Storage (at residences)	Fuel oil: spills, leaks, or improper handling	Residents to encourage proper maintenance and upgrades to fuel oil tanks.
Lawn Care / Gardening	Pesticides: over-application or improper storage and disposal	Residents to encourage proper storage, disposal, and application of pesticides.
Septic Systems / Cesspools	Hazardous chemicals: microbial contaminants, and improper disposal	Residents to encourage maintenance and inspection of septic systems and proper disposal of household hazardous waste.
Miscellaneous		
Aboveground Storage Tanks	Materials stored in tanks: spills, leaks, or improper handling	Aboveground Storage Tank owners to ensure that BMPs are in place for the handling, storage, and containment of materials stored in tanks.
Aquatic Wildlife	Microbial contaminants	Property owners and residents to ensure that BMPs are in place to prevent feeding and otherwise discourage aquatic wildlife.
Clandestine Dumping	Debris containing hazardous materials or wastes	Property owners to ensure that BMPs are in place for the inspection of areas prone to clandestine dumping, securing the areas in question, and proper disposal of debris.
Landfills and Dumps	Seepage of leachate	Landfills and dumps to ensure that BMPs are in place for the handling and disposal of leachate.
Large Quantity Hazardous Waste Generators	Hazardous materials and waste: spills, leaks, or improper handling or storage	Large quantity hazardous waste generators to ensure that BMPs are followed for the handling, storage, and disposal of hazardous materials and waste.
Oil or Hazardous Material Sites	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.	Licensed Site Professionals for oil or hazardous material sites to monitor progress on clean-up efforts.
Pipeline (Oil or Sewer)	Oil or sewage: spills or leaks	Pipeline owners to ensure that BMPs are followed for leak detection, repair, and clean-up.
Schools, Colleges, and Universities	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage	School maintenance staff to ensure that BMPs are in place for the handling, storage, and disposal of fuel oil and chemicals.
Stormwater Drains/ Retention Basins	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns	Department of Public Works to ensure that BMPs are in place for the disposal of sludge and maintenance of storm drains and detention basins.
Transmission Line Rights-of-Way - Type: Railroad and Power Lines	Corridor maintenance pesticides: over-application or improper handling; construction	Utility companies to ensure that BMPs are followed for the application and handling of pesticides.
Transportation Corridors	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling	Fire department to ensure that emergency response plans consider the water supply protection area.
Underground Storage Tanks	Stored materials: spills, leaks, or improper handling	Underground storage tank owners to ensure that BMPs are in place for the handling, storage, and containment of stored materials.

Utility Substation Transformers	Chemicals and other materials including PCBs: spills, leaks, or improper handling	Utilities to ensure that transformers containing PCBs are replaced and that BMPs are in place for the handling and disposal of other chemicals.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas

DEP's datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP's Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP's Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state's OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at http://www.state.ma.us/dep/bwsc. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at http://www.state.ma.us/dep/bwsc/sitelist.htm, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
2-0012045	403 PLEASANT ST	PAXTON	Oil and Hazardous Material
2-0011397	19 FORESTDALE RD	PAXTON	Oil
2-0011594	2 LEWIS ST	RUTLAND	Oil

For more location information, please see the attached map. The map lists the release sites by RTN.