Massachusetts Department of Environmental Protection

Source Water Assessment and Protection (SWAP) Report for

Lee Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), 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	Lee Water Department
PWS Address	32 Main Street
City/Town	Lee
PWS ID Number	1150000
Local Contact	Mr. Kenneth LaBier
Phone Number	413-243-5526

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including stormwater 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.

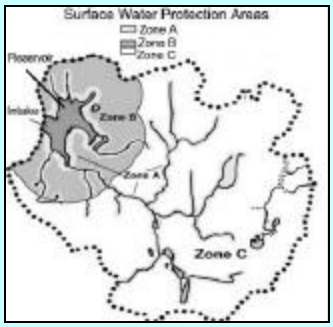
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

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

System Susceptibility: *Moderate*

Source Name	*Source ID*	*Susceptibility*
Leahey Reservoir	1150000-01S	Moderate
Vanetti Reservoir	1150000-02S	Moderate
Schoolhouse Reservoir	1150000-03S	Moderate

Lee is a small, rural industrial and residential community located in the Housatonic River valley in southwestern Massachusetts. Lee was incorporated in the late 1700s starting as an agricultural community. Industrial development commenced with the textile industry and expanded to include marble quarrying and the mainstay industry of paper manufacturing. The developed portions of town are along the Housatonic River valley with the valley bounded on the west by the Taconic Range and on the east by the Berkshire Massif. The reservoirs are located in East Lee and the town of Washington.

Lee Water Department maintains three water supply reservoirs: Leahey Reservoir (01G), Vanetti Reservoir (02G) and Schoolhouse Reservoir (03G). Schoolhouse Reservoir was developed to supplement the Lee and Lenox water supplies with Lee having rights to 51% of the available yield. The Water Department also maintains the Vanetti Reservoir (02G) as an inactive source and has rights to water from October Mountain Lake (04G) as an emergency source of water. The DEP has previously incorrectly referred to 04G as Washington Mountain Lake but has corrected all of it's records. The emergency source of water will not be assessed in this report.

The Leahey and Vanetti Reservoirs are located in East Lee; the watersheds extend into Washington. The Schoolhouse Reservoir and its watershed are located on October Mountain in the town of Washington. The topography of the watersheds is steep sloped valleys. The overburden material within the watersheds is predominantly a thin cover of glacial till, often referred to as hard pan, with significant areas of exposed bedrock; the brook valleys have limited deposits of recent alluvium and swamp deposits. The bedrock in the watershed is mapped as several formations consisting of metamorphic rocks and intrusive rocks of the Berkshire Massif (paragneiss, metavolcanics and orthogneiss). The structural geology of the region is highly complex with several stages of folding, faulting and significant structural movement. The watershed is located within an area of highly folded and faulted rocks. In fact, the major faults in the immediate area are identified as the Upper Reservoir and October Mountain faults.

One hundred percent (100%) of the Leahey and Schoolhouse Reservoirs' watersheds are protected from development through ownership by the water supplier or as state owned park land. Seventy-six percent (76%) of the Vanetti Reservoir watershed is owned by the Lee Water Department with the remainder of the watershed privately held forest. According to the Water Department, the landowner is proposing to conduct forest cutting at some time in the future. Nearly 100% of all of the watersheds are forest, water or wetlands. The land use map identifies an industrial land use within the Vanetti Reservoir watershed. The

facility identified is the Lee Water Department Water Treatment Plant. The water treatment plant is connected to the sewer and is located partially within and partially outside of the inactive Vanetti Reservoir watershed. Please refer to the attached map to view the boundaries of the protective areas.

Water from all of the reservoirs is treated through a Krofta filtration system, a dissolved air flotation filtration system, then chlorinated for disinfection and pH adjusted with soda ash for corrosion control. For current information on water quality monitoring results and treatment processes, please refer questions for a copy of the most recent Consumer Confidence Report.

Section 2: Land Uses in the Protection Areas

There are few activities that pose significant anthropogenic threats to the reservoirs. However, due to the nature of surface water supplies the sources are considered highly vulnerable to potential contamination threats. Land uses and activities that are considered potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues include:

1. Activities in Zone A
2. Transportation/recreation corridors
3. Water Treatment Facility
4. Forestry and protection planning

The overall ranking of susceptibility to contamination for the system is moderate, based on the presence of at a least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone A - The Zone A for a reservoir includes all areas within 400 feet of the reservoir shoreline and within 200 feet of either side of all streams and feeder ponds that flow into the reservoir. The Zone A is the area closest to the reservoir and its tributaries. Therefore, land uses within the Zone A are of particular concern. Activities that could potentially threaten water quality if improperly managed are restricted by 310 CMR 22.20B. Activities that store, use, or dispose of hazardous materials can be potential sources of contamination if improperly managed. Wild animals, farm animals and domestic pets can be carriers of waterborne diseases such as *Giardia*, *Cryptosporidium*, *Salmonella*, etc. It is reported that beavers periodically populate the watersheds.

There are numerous unpaved ways as well as legal (authorized) and illegal (unauthorized) trails throughout the watersheds. Most of these roads and trails are not maintained at all or are minimally maintained. The most active area is within October Mountain State Forest

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.

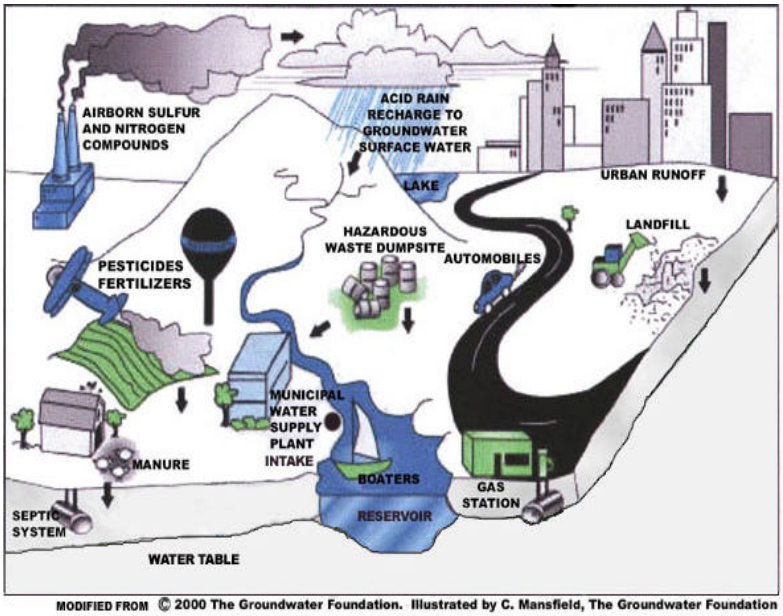


Figure 1: Sample watershed with examples of potential sources of contamination

along Lenox Whitney Place Road, County Road, Schoolhouse Road extension and Schoolhouse Trail. Some of these areas are remote from the reservoirs while others are immediately adjacent to the Schoolhouse Reservoir and/or cross feeder brooks. The Schoolhouse Trail and County Road converge near Schoolhouse Reservoir where there is an open area actively utilized by all terrain vehicles (ATVs). Reportedly there is no activity on the face of the dam. Uncontrolled access may result in erosion that poses a significant threat to water quality in areas that are proximal to feeder streams and the reservoirs, potentially resulting in additional water treatment costs if they continue unchecked. Uncontrolled erosion contributes sediment, various contaminants and pathogens into the contributing waters and reservoirs. Access to the reservoirs was observed and anecdotal information indicates evidence of camping near the reservoirs and throughout the watersheds. Unmanaged access may result in vandalism, illegal dumping and access to the reservoir resulting in water quality impairment.

Transportation/recreation Corridor Recommendations:

- ✓ Consider preparing a watershed management plan to address stormwater management and erosion control on town-owned property and throughout the watershed. Include an inventory of the existing conditions within the watershed and determined numerous areas of uncontrolled access and erosion problems. Specifically, review all activities adjacent to the Schoolhouse Reservoir. Address public access and ATV use at the reservoir with respect to access to Zone A, protection of the infrastructure and erosion into the reservoir from activities near the reservoir.
- ✓ Investigate disposition of all roads, ways and "trails".
- ✓ Increase patrols of watershed land and enforce no trespassing.
- ✓ Evaluate all options for management of access to ways. Include evaluation of continuing current practice of full access, closing roads to all traffic, closing road to all commercial traffic and limiting access only to residents with a locked gate and key for residents only. Communicate with Selectmen or the State (for old county roads) regarding abandonment, control and other access issues for town roads.
- ✓ Evaluate stormwater drainage along the few local roads in the watershed. Consider various strategies to detain/slow the flow, redirect runoff out of the watershed or retain/detain sediments from roads within the watershed. Since these roads are in neighboring communities, the Water Department should foster a relationship with the communities to evaluate and mediate stormwater threats identified within the watershed. Coordinate efforts for work and cost sharing with the Town of Washington as appropriate.
- ✓ Evaluate existing conditions throughout the watershed with respect to current illegal use of watershed land. Determine where illegal access is being gained and what are the destination points. Develop a strategy and management plan to eliminate or control access. Coordinate with the communities for management strategies.
- ✓ Coordinate with local emergency response teams to ensure effective management of

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.

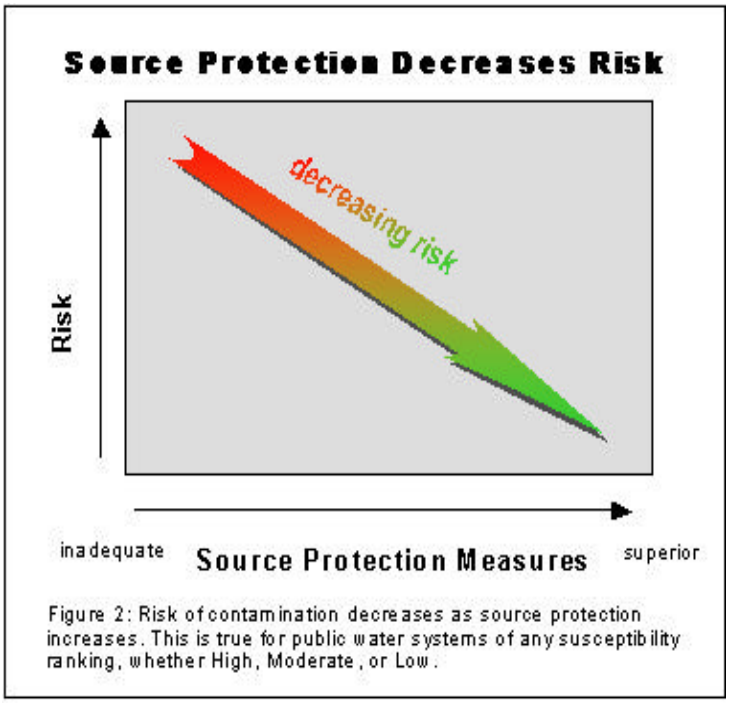


Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

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	Threat*	Source ID	Potential Source of Contamination
Agricultural				
Forestry Operations	Few	M	01S	Leaks and spills, improper handling of petroleum products in equipment. Erosion.
Water Treatment Plant	1	M	02S	Fuel oil household hazardous materials: spills, leaks, or improper handling.
Transportation/ recreation corridor (legal/illegal)	Few	M	01S	Petroleum products accidental leaks or spills; illegal access to the reservoir. Potential for erosion and access to Zone A.
Underground Storage tank (fuel oil)	1	M	02S	The tank is double lined with an alarm system. Leaks and spills from breaks and/or overfills are the potential threat.

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.

potential spills.

- ✓ Contact MA DCR regarding uncontrolled and advertised access to abutting DCR land to develop an effective strategy to eliminate, control and/or manage access as appropriate through the watershed, especially in areas proximal to the Zone A. Request an access and management plan for all lands within the Schoolhouse Reservoir watershed including BMPs as appropriate.
- ✓ The Department has a policy for responding to beavers that may threaten water quality in a watershed. Please refer to the website for guidance at http://www.state.ma.us/dep/brp/dws/protect.htm.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Inspect roadways to determine if improvements to the road are required to prevent stormwater runoff and erosion to the reservoir. If it is determined that road improvements are necessary, develop a plan and implement improvements. USDA funding may be available for mitigation and prevention of runoff pollution through the Environmental Quality Incentives Program (EQIP). The USDA web site is www.rurdev.usda.gov or call the Rural

Development Manager at the local office in Hadley at 413-585-1000. Alternatively, review the fact sheet available online at http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf or call the NRCS office in Pittsfield 413-443-6867 ext. 3 for assistance.

- ✓ Visit the DEP Bureau of Resource Protection's Municipal Services web site at: http://mass.gov/dep/brp/mf/mfpubs.htm for more information on other grants and loans.

3. Water Treatment Facility - The Lee Water Treatment Facility is located within the Zone A of the upper reservoir. The facility is served by municipal sewer and drainage from the facility is reportedly directed outside of the watershed. Activities associated with water treatment involve storage and use of hazardous materials such as chlorine, sodium hydroxide and fuel oil for the generator. In fact there is a 4,000 gallon underground storage tank for fuel oil at the facility. The tank is double lined with an alarmed leak detection system. All water treatment chemicals are stored above ground in secondary containment. Stormwater from the facility reportedly discharges outside of the watershed. Spills or leaks of hazardous materials during handling and delivery and stormwater are a potential source of contamination.

Water Treatment Facility Recommendations:

- ✓ Ensure that the water treatment facility is operated and maintained according to DEP requirements.
- ✓ Ensure that stormwater drains and the drainage system around the treatment plant do drain outside of the watershed. Maintain stormwater system and catchbasins as necessary.
- ✓ Continue current use of best management practices for proper handling of materials and in containing spills and leaks.
- ✓ Update emergency plans as necessary.

4. Forestry and Protection Planning – The Water Department does not have an approved Water Supply Protection Plan (WSPP). The watersheds are primarily woodland and the Water Department owns nearly 100% of the Leahey watershed with the state and private land owners owning the rest of the forest land. Good forest management of watershed land can beneficially impact water quality and health of the watershed forests. Forest management includes recreational activities as well as forest cutting.

Forestry Protection Planning Recommendations:

- ✓ Establish active watershed protection planning and forest management for water supply protection in a comprehensive watershed plan. Prepare a comprehensive watershed and forest management plan specifically designed for a water supply watershed. Contact DCR to discuss a comprehensive plan that will incorporate active management of recreational activities in the immediate vicinity of the reservoirs and Zone A. Implement the plan and include BMPs for wetlands and stream crossings and in compliance with forestry regulations as appropriate.
- ✓ Encourage and support efforts by private land owners to actively manage forests for water supply protection, as appropriate.
- ✓ Continue to monitor all activities on Town, state and privately held land within the watershed.

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

Land uses and activities within the watershed that are potential sources of contamination are included in Table 2. Identifying potential sources of contamination is an important initial step toward 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.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system's watershed contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water

supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Detailed knowledge of the watershed and active involvement in inspecting and inventorying land uses in the watershed.

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

- ✓ Continue inspection of the Zone A protection areas and watershed regularly, and when feasible, remove or manage any non-water supply activities.
- ✓ Continue cooperation and communication with emergency response teams to ensure that they are aware of the boundaries of the watershed for notification of spills or accidents.
- ✓ Through the implementation of the WSPP, provide information to private landowners in your protection areas to make them aware of your water supply and to encourage the use of best management practices for forest management to protect drinking water sources.
- ✓ As part of the stormwater evaluation and mitigation plans, identify problem area specifically in the Zone A along roads/trails throughout the watershed. Make every effort to ensure stormwater discharge and runoff is detained prior to release to protection areas. Consider various strategies to detain/ slow the flow and retain sediments to keep the runoff out of the reservoirs. Direct runoff out of the watershed if feasible. Work with the DCR to review their trails, access policies and management of activities that have the potential to impact the reservoirs.
- ✓ Once the forest management plan has been approved, implement the plan to establish/maintain a healthy and ideal watershed forest, which will buffer anthropomorphic and natural environmental impacts on water quality and quantity.

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 in Appendix A.

- ➢ **Provide Outreach to the Community:**
  Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the source protection areas are located, what types of land uses and activities pose threats, and how their efforts can enhance protection.

- ➢ **Other Funding Sources:**
  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 USDA also has various funding sources for government agencies, non-government organizations and agricultural facilities through programs such as those listed on the USDA web site http://search.sc.egov.usda.gov/nrcs.asp?qu=eqip&ct=NRCS. One program in particular, the Environmental Quality Incentives Program (EQIP) may be utilized in a variety of projects from DPW stormwater management to farm nutrient management designed to protect surface and groundwater. Review the fact sheet available online at http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf and call the local office of the NRCS for

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.

For More Information

Contact Catherine V. Skiba in DEP's Springfield Regional Office at (413) 755-2119 for more information and assistance on improving current protection measures.

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

assistance.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection.

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 establish local drinking water protection priorities. Citizens and community officials should use this SWAP report to encourage 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 protection areas. Use this information to establish priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

A. General Protection Recommendations

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**	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. Monitor activities in Zone A.
Is the Zone A posted with "Public Drinking Water Supply" or "No Trespassing" signs?	**YES**	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	**YES**	Continue regular inspections of drinking water protection areas. Increase patrols as appropriate and develop a plan to control access in critical areas.
Are water supply-related activities the only activities within the Zone A?	**YES**	Continue monitoring non-water supply activities in Zone As.
Municipal Controls (Zoning Bylaws, Health Regulations, Ordinances and General Bylaws)		
Do the watershed municipalities have Surface Water Protection Controls that meet 310 CMR 22.20C?	**NO**	The Water Department or state owns nearly the entire watershed. The small portions of the watershed that are privately held are at this time fully developed.
Do neighboring communities protect the water supply protection areas extending into their communities?	**N/A**	
Planning		
Does the PWS have a local surface water supply protection plan?	**NO**	Prepare a plan to inventory activities and issues related to stormwater management erosion control, access management and forest management.
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	**YES**	Update the plan as appropriate by developing a joint emergency response plan with the Fire Department, DCR and local and state emergency officials.
Does the municipality have a watershed protection committee?	**NO**	Consider establishing a committee that includes representatives from municipal and citizens' groups.
Do the Boards of Health conduct inspections of commercial and industrial activities?	**N/A**	
Does the PWS provide watershed protection education?	**NO**	Consider working with DCR to control access to Zone A and areas that have the to potential to impact the reservoir.