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

Stockbridge 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	Stockbridge Water Department
PWS Address	6 Main Street
City/Town	Stockbridge
PWS ID Number	1283003
Local Contact	Mr. Michael Buffoni
Phone Number	413-298-4067

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.

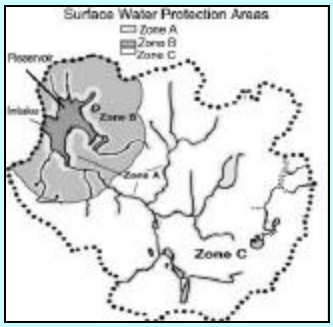
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

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*
Lake Averic	1283003-01S	Moderate

Stockbridge is a small rural and residential community located in southwestern Massachusetts in the Berkshire Hills. Stockbridge is located within the Taconic-Hoosic 'bowl" surrounded by West Stockbridge Mountain to the west, Rattlesnake Hill to the east and Bear Mountain and Monument Mountain to the south. The Housatonic River flows west through the southern section of the town before it turns to flow south again through Great Barrington. The town center is located along the Housatonic River valley.

Stockbridge Water Department supplies water to the town center from Lake Averic Reservoir located in the west central section of town. The watershed for the reservoir is located on West Stockbridge Mountain. The topography of the watershed is steep sloped valley with one small feeder brook. The overburden material within the watershed is predominantly a thin cover of glacial till, often referred to as hard pan, with significant areas of exposed bedrock. The brook valley has limited deposits of recent alluvium and swamp deposits. The bedrock in the watershed is mapped as several formations consisting of metamorphic rocks and igneous intrusive rocks of the Walloomsac and Stockbridge Formations, predominantly schist and marble, respectively part of the Berkshire massif. 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 faulted, overturned synclines and anticlines.

Approximately 99% of the watershed is protected from development through Town or State ownership or land held in conservation restrictions. Land use within the Lake Averic watershed is primarily forested upland (86%) with the remaining watershed consisting of water, wetland and residential activities. Please refer to the attached map to view the boundaries of the protective areas.

Water from the reservoir is treated through a Trident, rapid sand filtration system, then chlorinated for disinfection and pH adjusted with sodium hydroxide 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, these 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. Residential land use
3. Transportation corridors
4. Forestry
5. 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. Beavers periodically populate the watershed.

Overall, the watershed is sparsely populated; approximately 90% of the watershed is forested. Averic Road crosses through the Zone A of the reservoir. The area is patrolled by police and the land and reservoir are posted for no trespassing. The lower reservoir, south of Lake Averic is no longer used, eliminating some residential and agricultural land uses within the Zone A. Although Averic Road is the only non-conforming land use within the Zone A, due to it's proximity to the reservoir, use should be strictly monitored and the road closed to traffic if access cannot be controlled.

Zone A Recommendations:

- ✓ Direct all stormwater to the south, outside of the watershed. Inspect the roadway for susceptibility to erosion. Determine what, if any BMPs are needed and implement improvements as required.
- ✓ Prohibit all new non-water supply activities from the Zone A on land within your control .
- ✓ Maintain patrols and enforce the no trespassing requirement. Consider requesting that the road be closed to public access and gated if access cannot be controlled.
- ✓ 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.

2. Residential Land Uses – There are only a few residences located within the watershed in a small development on the east side of the watershed. None of the

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.

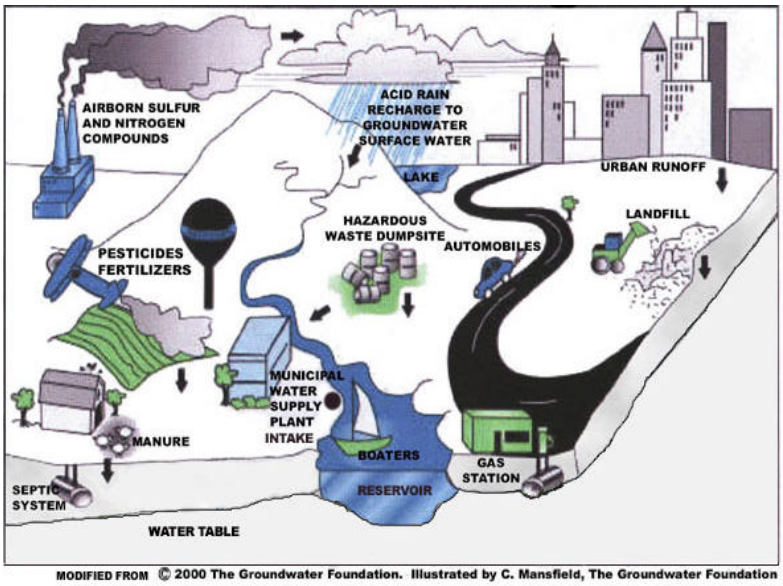


Figure 1: Sample watershed with examples of potential sources of contamination

areas have public sewers to remove wastewater, therefore on-site septic systems are used. 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 to the groundwater because septic systems leach to the ground. 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 (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground and streams. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

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 residential issues.
- ✓ Establish efforts for negotiating fee simple purchase, Right of First refusal agreement, conservation restrictions and Memorandum of Understanding for land not currently owned or controlled by the District.
- ✓ Refer to http://www.state.ma.us/dep/brp/dws/dwspubs.htm and http://www.state.ma.us/dep/consumer/animal.htm#dwqual for additional resources.
- ✓ Educate residents regarding the no trespassing policy of the Water Department.

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.

3. Transportation Corridors - There are very few roads within the watershed. Averic Road passes over the lower section of the watershed and there is one development on the eastern edge of the watershed with very few trails into the watershed. Even typical roadway maintenance and low use pose a potentially significant source of contamination from accidents and washouts and pesticide application for vegetation control along both the paved and dirt roads, especially in the Zone A. Erosion poses a potentially significant threat to water quality in areas that are proximal to feeder streams and the reservoirs, by contributing sediment, various contaminants and pathogens which may result in additional water treatment costs if they continue unchecked.

The Water Department does not allow public access to watershed land that it owns, however, Averic Road is a public way. The road has been closed to truck traffic and is patrolled at least twice per day. There is

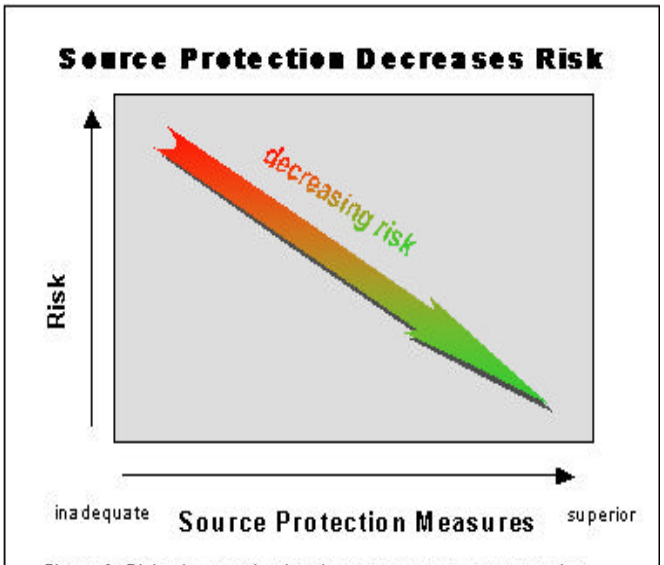


Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

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.
Residential				
Fuel oil storage (at residences)	Few	M	01S	Fuel oil household hazardous materials: spills, leaks, or improper handling
Lawn care / Gardening	Few	M	01S	Pesticides: over-application or improper storage and disposal
Septic systems	Few	M	01S	Microbial contaminants and improper disposal of hazardous chemical
Transportation corridors	Few	M	01S	Potential threats: petroleum products and transported hazardous materials—accidental leaks or spills; pesticides—over-application or improper handling; erosion.

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.

little evidence of illegal access to the watershed on trails by ATVs. The Water Department has an approved Surface Water Protection Plan that addresses patrolling of the watershed. Recently, the Water Department has implemented forestry in the watershed and the Department recommends that the Water Department prepare a forest management plan that incorporates BMPs in forestry operations to protect water quality.

Transportation Corridor Recommendations:

- ✓ Continue regular inspections of the watershed for signs of access, illegal dumping and spills and continue to enforce the no trespassing policy.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively

contained.

- ✓ Inspect Averic Road 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.

4. Forestry and Protection Planning – The Water Department has an approved Water Supply Protection Plan. However, plans periodically require updating to correct errors in the original plan, to reflect completed tasks and new conditions. The watershed is primarily woodland and the Water Department owns nearly 100% of the watershed. Good forest management of watershed land can beneficially impact water quality and health of the watershed forests. The Water Department recently has implemented a forest cutting policy in the watershed and is working with a contract forester. According to the Water Department, a forest management plan will be developed.

Forestry Protection Planning Recommendations:

- ✓ Establish active watershed protection planning and forest management for water supply protection in a comprehensive watershed plan. Update the current plan to include the comprehensive forest management plan specifically designed for a water supply watershed. Implement the plan including BMPs for wetlands and stream crossings and in compliance with forestry regulations as appropriate.
- ✓ Encourage and support efforts by private land owners in active forest management for water supply protection as appropriate.
- ✓ Continue to monitor all activities on privately held land within the watershed.

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:

- Preparing and implementing a Water Supply Protection Plan (WSPP),
- Detailed knowledge of the watershed and active involvement in inspecting and inventorying land uses in the watershed, and
- Working with the community to prohibit truck traffic from Averic Road.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Continue inspection of the Zone A protection area 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 landowners in your protection areas to make them aware of your water supply and to encourage the use of best management practices for residential and recreational uses and other ways they can help you to protect drinking water sources.
- ✓ Update the Watershed Protection Plan and include a review of Averic Road and a comprehensive forest management plan.
- ✓ As part of the stormwater evaluation and mitigation plans, identify problem areas specifically in the Zone A along

roads 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.

✓ 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 assistance.

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.

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

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.

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.

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. Continue to monitor activities on Averic Road and control access.
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 A.
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 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?	**YES**	Update the Plan as appropriate to address newly identified threats, inventories that may not been included and to adjust protection priorities as tasks are completed such as the stormwater management plan and the forest management plan.
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	**YES**	Update the plan as appropriate by reviewing joint emergency response plans with the Fire Department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams. Complete vulnerability assessment as appropriate for the system.
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?	**YES**	Continue efforts to provide information about BMPs to residents.