



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

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	West Springfield Water Department
PWS Address	26 Central Street
City/Town	West Springfield, Massachusetts
PWS ID Number	1325000
Local Contact	Mr. Jeffrey Auer, Superintendent
Phone Number	413-263-3230

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells and reservoirs 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

Section 1: Description of the Water System

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

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.

System Susceptibility:

High

Groundwater Sources

MA GIS Zone II #: 205

Susceptibility: High

Well Name	Source ID#
GP Well #1 Southwick	1325000-01G
GP Well #1 Southwick	1325000-02G
GP Well #1 Southwick	1325000-03G
GP Well #1 Southwick	1325000-04G

Surface Water Sources

Source Name	Susceptibility: High
Bear Hole Reservoir	1325000-01S

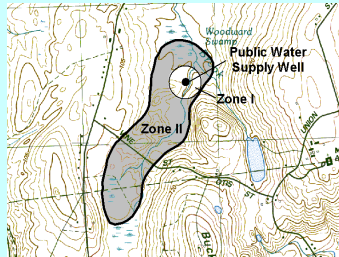
West Springfield is a mid-sized industrial, residential community in western Massachusetts. West Springfield Water Department receives its water from four wells and one reservoir, and also purchases water from the Springfield Water & Sewer Commission. A copy of the SWAP report for the Springfield system will be forwarded upon completion. The four wells for the West Springfield Water Department are located in the Town of Southwick near the border with Westfield. The wells are in relatively close proximity to each other within the same unconfined, sand and gravel aquifer. Each well has a Zone I of 400 feet and the Zone II recharge area was delineated utilizing empirical data, analytical modeling and geologic mapping. The aquifer is an extensive, very productive, sand and gravel, buried valley aquifer. The aquifer was formed during the recession of the glaciers about 14,000 years ago when the water from the melting glaciers deposited sand and gravel in the bedrock valleys. There are two other municipalities, Westfield and Southwick, that have wells located within the same aquifer. The Zone II for West Springfield's wells extends to the aquifer watershed boundary, south of the Congomond Lakes, and is partially within the town of Suffield, Connecticut. There is no evidence of a protective, confining clay layer above the sand and gravel aquifer. Wells located in this type of an aquifer are considered to be highly vulnerable to contamination from activities on the ground surface due to the absence of hydrogeologic barriers (i.e. confining clay layer) that can prevent contaminant migration. The water from the wells is

treated through a granular activated carbon unit to remove the pesticides (ethylene dibromide) EDB and (dichloropropane) DCP, and disinfected prior to distribution. EDB and DCP are chemical compounds that had been used on fields located adjacent to the wells. Please refer to the attached map of the Zone II.

The Bearhole Reservoir is located in West Springfield and its watershed extends into the cities of Holyoke and Westfield. The majority of the watershed includes steep-sided valley walls, although the center of the watershed lies within a broad, brook valley along the Paucatuck Brook and extending north into Holyoke. The Ashley Pond Reservoirs, part of Holyoke's water supply, are located in the northern part of the Bearhole Reservoir watershed. The overburden material in the valley is primarily stratified drift, composed of sand and gravel, while the steeper valley walls and in the upland areas there is a thin cover of glacial till or exposed bedrock. The bedrock in the watershed is

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



mapped as the volcanic and sedimentary rocks of the Hartford Basin. Please refer to the attached map of the watershed.

Water from the reservoir is filtered and disinfected prior to distribution. For current information regarding water quality monitoring results and treatment, please contact the Public Water System contact person listed in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone II and watershed for West Springfield are primarily a mixture of agriculture, forest and residential land uses, with smaller portions consisting of commercial and industrial land uses (refer to attached maps for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Non-conforming Zone I
2. Activities in Zone A
3. Residential Land Uses
4. Transportation Corridors
5. Hazardous Materials Storage and Use
6. Agricultural Activities
7. Comprehensive Wellhead 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. Non-conforming Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulation (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. West Springfield owns or controls the Zone Is for Wells 01G and 04G, but does not own or control the Zone Is for Well 02G and 03G. Only water supply activities or non-threatening activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of the system wells:

Well 02G - A tobacco field extends into the Zone I for Well 02G.

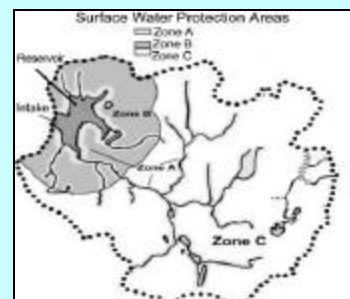
Well 03G - A hayfield extends into the Zone I for Well 03G.

Zone I Recommendations:

- ✓ To the extent possible, remove all activities from the Zone Is that are not related to water supply to comply with DEP's Zone I requirements.
- ✓ Notify landowners in the Zone Is to be sure they are aware they are in a Zone I and/or Zone II and comply with all regulations that may be applicable to activities they are conducting, such as the use of pesticides.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Enter into an agreement of Right of First Refusal with land owners in the Zone Is and/or try to acquire conservation restrictions.
- ✓ Do not use or store pesticides, fertilizers or deicing materials within the Zone Is.

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.



- ✓ Prohibit new non-water supply activities from the Zone Is.

2. Activities in Zone A - The Zone A for reservoirs includes all areas within 400 feet around the reservoir and within 200 feet of either side of all streams that flow into the reservoir. Land use activities within the Zone A for Bear Hole Reservoir which may have an impact on surface water sources include: transportation corridors, including the Mass. Turnpike (I-90) and local roads; active railroad tracks; stormwater runoff; and aquatic wildlife. Wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.

Zone A Recommendations:

- ✓ To the extent possible, remove all prohibited activities from the Zone A to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Prohibit new non-water supply related activities from the Zone A.

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. Residential Land Uses – Approximately 16% of the Zone II and a small portion of the watershed consist of residential areas. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Some of the areas have access to public sewers, while other areas within the protection areas rely on septic systems for wastewater management. Common potential sources of contamination from residential areas 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 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)



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

can be potential sources of contamination due to leaks or spills of the stored fuel oil.

- **Stormwater** – 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 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.
- ✓ Work with planners to control new residential developments in the water supply protection areas.

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 Water Supply Protection Areas

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Areas

Land Uses	Quantity	Threat	Zone II	Watershed	Potential Contaminant Sources*
Agricultural					
Fertilizer Storage or Use	Numerous	M	Yes	-	Leaks, spills, improper handling, or over-application of fertilizers
Forestry Operation	Numerous	M	Yes	Yes	Herbicides or pesticides, equipment maintenance materials: leaks, spills, or improper handling; road building
Livestock Operations	Numerous	M	Yes	-	Manure (microbial contaminants): improper handling
Manure Storage or Spreading	Numerous	H	Yes	-	Manure (microbial contaminants): improper handling
Pesticide Storage or Use (tobacco)	Numerous	H	Yes	-	Leaks, spills, improper handling, or over-application of pesticides, leaching
Slaughterhouse	1	M	Yes	-	Manure and other waste products (microbial contaminants): improper handling
Commercial					
Gas Stations	1	H	Yes	-	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Auto Repair Shops / Service Stations	4	H	Yes	-	Spills, leaks, or improper handling of automotive fluids, and solvents (1in CT)
Boat Yards/Builders (Marina)	1	H	Yes	-	Fuels, paints, and solvents: spills, leaks, or improper handling
Bus Terminals	1	H	Yes	-	Fuels and maintenance chemicals: spills, leaks, or improper handling
Junk Yards and Salvage Yards	1	H	Yes	-	Automotive chemicals, wastes, and batteries: spills, leaks, or improper handling
Golf course	2	M	Yes	-	Leaks, spills, of hazardous materials, over application of pesticides and herbicides
Repair Shops (Engine, Appliances)	1	H	Yes	-	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage
Mining	2	M	Yes	Yes	Heavy equipment, fuel storage, clandestine dumping: spills or leaks
Railroad Track and Depot	1	H	-	Yes	Spills, leaks, or improper handling of maintenance and shipped materials

Table 2: Land Use in the Water Supply Protection Areas

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat**	Zone II	Watershed	Potential Contaminant Sources*
Industrial					
Food Processors	2	L	Yes	-	Cleaners, other chemicals, microbial contaminants: spills, leaks, or improper handling or storage.
Metal Fabricators	1	H	Yes	-	Solvents and other chemicals: spills, leaks, or improper handling or storage
Fuel Oil Distributors	2	H	Yes	-	Fuel oil: spills, leaks, or improper handling or storage (1 in MA and 1 in CT)
Hazardous Materials Storage	1	H	Yes	-	Hazardous materials: spills, leaks, or improper handling or storage
Hazardous Waste Storage, Treatment and Recycling	1	H	Yes	-	Hazardous materials: spills, leaks, or improper handling or storage
Industry/ Industrial Parks	1	H	Yes	-	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Machine/ Metalworking Shops	1	H	Yes	-	Solvents and metal tailings: spills, leaks, or improper handling
Residential					
Fuel Oil Storage (at residences)	Numerous	M	Yes	Yes	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	Numerous	M	Yes	Yes	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Numerous	M	Yes	Yes	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous					
Aboveground Storage Tanks	Several	M	Yes	Yes	Materials stored in tanks: spills, leaks, or improper handling (1 in CT)
Aquatic Wildlife	Some	L/H	Yes	Yes	Microbial contaminants
Underground Storage Tanks	2	H	Yes	-	1 in CT (oil), 2 in MA (gasoline/diesel)
Clandestine Dumping	Some	H	Yes	Yes	Improper use or storage of fuels and other chemicals
Fishing/Boating	Some	L/M	Yes	-	Fuel and other chemical spills, microbial contaminants
Schools	3	M	Yes	-	Laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Transportation Corridors	Numerous	H	Yes	Yes	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling

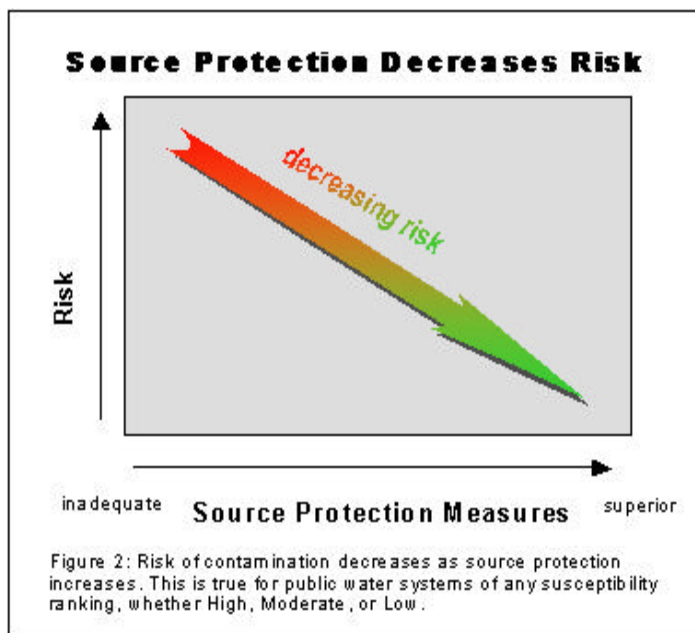
Notes:

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.

4. Transportation Corridors - Interstate 90, the Mass. Pike, runs through the Zone A for Bear Hole Reservoir. Local roads and trails are common in the Zone II and watershed. Roadway construction, maintenance, typical highway use and illegal or inappropriate trail 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 and streams. 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.

There are numerous unpaved, roadways as well as legal (authorized) and illegal (unauthorized) trails throughout the watershed and Zone IIs. Most of these roadways and trails through the watershed are not maintained at all or are minimally maintained. The resulting erosion poses a significant threat to water quality in areas that are proximal to feeder streams and the reservoirs, potentially resulting in additional drinking water treatment costs if they continue unchecked and pose a potential threat to public health and safety. Uncontrolled erosion contributes sediment, various contaminants and pathogens into the contributing waters and reservoirs. Evidence of access to the watershed was observed and anecdotal information indicates access throughout the watershed. Unmanaged access may also result in vandalism, illegal dumping and access to the reservoir, resulting in water quality impairment.



Railroad tracks run through the Zone A and watershed. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

- ✓ Regularly inspect the watershed and Zone II 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 City and Massachusetts Highway Department 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 NPDES Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Promote BMPs for stormwater management and pollution controls.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.
- ✓ Notify City and host town officials of potential USDA funding for mitigation and prevention of runoff pollution through the Environmental Quality Incentives Program (EQIP).

5. Hazardous Materials Storage and Use – A small portion of the Zone II for West Springfield’s wells has commercial or industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in USTs/ASTs. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be allowed to enter a septic system or floor drain leading directly to the ground.

There are mining operations within both the watershed and the Zone II. The MA DEP recommends continued vigorous monitoring of these activities with respect to hazardous materials management and closure activities at those facilities.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local 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

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with the watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow to the Zone II .
2. The groundwater in this area probably discharges to surface water feature such as a river rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Top 5 Reasons to Develop a Local Wellhead and 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.

businesses, water suppliers, and communities enhance successful public drinking water protection practices.

- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.
- ✓ The USDA has various funding sources for governmental agencies, non-governmental organizations and agricultural facilities through programs such as those listed on the USDA web site <http://search.sc.egov.usda.gov/>. If it is needed, funding may be available for the school and bus terminal in Southwick. Additional information is available on the web site www.ruraldev.usda.gov or call Paul D. Geoffroy, Rural Development Manager at the local office in Hadley at 413-585-1000 ext.4.

6. Agricultural Activities, Hobby Farmers and Golf Course – The Zone II consists of approximately 17% agricultural land use including animals and cropland. There are also two golf courses and several non-commercial farms. Please note that this percentage does not include the area located in Connecticut that contains large tobacco farms within the Zone II. Massachusetts pesticide regulations do not apply in Connecticut. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed and those permitted to be applied in protection areas are regulated by the MA Pesticide Bureau. Often farms and golf courses use and store hazardous materials. Proper handling, management and disposal of hazardous materials is imperative in protection areas. In addition, if managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the stored fuel oil.

Agricultural Activities, Hobby Farmers and Golf Course Recommendations:

- ✓ Work with farmers in your protection areas to make them aware of your

water supply and to encourage the use of a USDA Natural Resources Conservation Service (NRCS) farm plan to protect water supplies. Recommend that they contact NRCS for assistance.

- ✓ Encourage the farmers and lawn and course managers to incorporate an Integrated Pest Management (IPM) approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote the use of best management practices (BMPs) for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with farmers and lawn and course managers to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.
- ✓ Work with hobby farmers by supplying them with information about protecting their own wells and the public water supply by encouraging the use of BMPs. 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.
- ✓ The USDA has various funding sources for government, non-government organizations and agricultural facilities through programs such as those listed on the USDA web site <http://search.sc.egov.usda.gov/>. 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 and call the local office of the NRCS for assistance <http://www.nrcs.usda.gov/programs/farmland/2002/pdf/EQIPFct.pdf>.
- ✓ A copy of this report will be sent to the planner in the Town of Suffield, CT.

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

For More Information

Contact Catherine V. Skiba in DEP's Springfield 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 and the town boards.

7. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir. Currently, West Springfield has a watershed protection bylaw, but should update it to be in compliance with DEP's Surface Water Protection regulations 310 CMR 22.20 (b) and (c). Holyoke and Westfield do not have local controls that meet DEP's Surface Water Protection regulations 310 CMR 22.20 (b) and (c) to protect the watershed lands. Southwick's water supply protection district includes the West Springfield Zone II. The Southwick bylaws meet DEP's Wellhead Protection regulations 310 CMR 22.21(2). Wellhead Protection and Surface Water Supply Protection Plans coordinate community efforts, identify protection strategies, establish timeframes for implementation, and provide a forum for public participation. West Springfield has a Surface Water Supply Protection Plan which should be implemented and updated as necessary to reflect actions taken and new or changing conditions that occur. There are resources available to help communities develop plans for protecting drinking water supply sources.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team with officials from Southwick and Suffield, CT and refer to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".
- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ If local surface water supply protection controls do not meet the current regulations, 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>.
- ✓ 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/>.

- ✓ Work together with the Town of Southwick to establish a working relationship with the town of Suffield Connecticut regarding wellhead protection. Contact Lori Mathieu of the CT Department of Public Health at 860-509-7333 or the CT DEP for more information about how CT regulates activities within water supply protection areas. The MA DEP has forwarded an outline of the protection area within CT to the CT DPH and information regarding the land uses observed. A copy of this SWAP report has also been forwarded to the Suffield, CT Town Planner for their review and consideration.

During the SWAP assessment for Southwick and West Springfield, it was noted by the Southwick Water Department and confirmed through review of CT DPH online information, a public water system West Service Corp., is located within the West Springfield Zone II, and owns and operates two wells just over the CT border in Suffield. The MA DEP was not able to obtain any information about potential sources of contamination in this area other than what was observed through a windshield survey of the Zone II area. There is a metal building between what are believed to be the well houses for the system with several vehicles parked at the facility. A fuel pump was observed behind the metal building. It is not clear if the fuel pump was connected to an underground or aboveground storage tank. There is a crane parked immediately adjacent to what appeared to be the well house for one of the wells. The majority of the land use in the Zone II area within Connecticut is tobacco fields and residential development. There is one small commercial area that included an auto body repair shop with numerous stored vehicles on-site, a fuel oil business with service trucks and an office/garage. The fire department is also located within the Zone II and appears to have a UST on-site.

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Facilities observed in Connecticut are also included in Table 2. Refer to Appendix B for more information about the land uses in Massachusetts. 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.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone II and watershed contain 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:

- Land acquisition within the watershed, protecting a total of 77% of the watershed lands.
- Adding gates to discourage unauthorized access to the watershed land, especially the use of All Terrain Vehicles.
- Working cooperatively with local quarries, railroad, and other businesses in the watershed.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone Is and Zone A regularly, and when feasible remove any non-water supply activities.
- ✓ Educate residents 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 Zone II and watershed and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.

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.

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships among businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ **Educate Residents:**

If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to groundwater contamination. Hazardous materials include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Animal waste is also a source of microbial contamination. Farmers may find BMPs helpful in managing manure, pesticides and fertilizers. Provide information or refer them to the DEP's website

➤ **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 wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is local planning, including adoption of local controls of land use, regulations related to watersheds and groundwater protection. These controls may include health ordinances/regulations, discharge prohibitions, general ordinances, and zoning bylaws that prohibit or control potential sources of contamination within the protection areas.

➤ **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 has various funding sources for government, 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 on line and call the local office (Amherst 413-253-4350) of the NRCS for assistance <http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf>.

The Department's Source Protection Grant Program provides funds to assist public water suppliers and their partners in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under this grant program. If funds are available, each spring DEP posts a new Request for Response for the grant program (RFR). Visit the DEP <http://www.state.ma.us/dep/brp/mf/othergrt.htm> and <http://www.state.ma.us/dep/brp/dws/grants.htm> for information about available funds.

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 Zone II. 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. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I and Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I ?	YES 01G, 04G NO 02G, 03G	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.
Are the Zone I and Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone I and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES 02G, 03G NO 01G, 04G	Monitor non-water supply activities in Zone I (agricultural areas) and prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2) ?	YES - Zone II NO - Watershed	Southwick has a bylaw in compliance with 310 CMR 22.21(2). Watershed lands in West Springfield are not protected by a Watershed Protection bylaw. Work with the Planning Board to compare land use controls to see that they meet current requirements of 310 CMR 22.20C. Refer to mass.gov/dep/brp/dws/ for model bylaw/ordinance and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	YES - Zone II in Southwick NO - Watershed	Southwick actively protects the Zone II through bylaws and an active Board of Health. There is no information regarding Suffield's bylaws. Contact Suffield or CT DPH. Work with the communities of Holyoke and Westfield to encourage them to protect watershed lands.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	YES - Surface NO - Wellhead	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ . Update Watershed Resource Protection Plan as noted in watershed inspection reports and as appropriate.
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment the plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams in Southwick and in Holyoke as appropriate.
Does the municipality have a watershed and wellhead protection committee?	NO	Establish committee and include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc . Encourage and assist Boards of Health in conducting inspections of commercial and industrial facilities as appropriate.
Does the PWS provide watershed protection education?	YES	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II and watershed.

APPENDIX B: REGULATED FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREAS

DEP Permitted Facilities

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class
34340	Rods Customs & Restorations	106b Foster Rd	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
131583	More Parts Of Southwick Inc	40 Sam West Rd	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
50494	Powder Mill Middle School	94 Powder Hill Rd	Southwick	Plant	Air Quality Permit
50583	Western Mass Rendering Co Inc.	94 Foster Rd	Southwick	Generator Of Hazardous Waste	Small Quantity Generator of Waste Oil or PCBs
211896	Bus Maintenance Garage	Powder Mill Rd	Southwick	Sewer Connection Or Groundwater Discharge	Industrial Waste Water To Sewer
275553	Southwick Tolland Regional High School	93 Feeding Hills Rd	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
280450	B & E Tool Company Inc	10 Hudson Drive	Southwick	Generator Of Hazardous Waste	Small Quantity Generator
275553	Southwick Tolland Regional High School	93 Feeding Hills Rd	Southwick	Plant	Air Quality Permit
281212	Moosehead Harvesting Corp	49 Sam West Rd	Southwick	Generator Of Hazardous Waste	Small Quantity Generator Of Waste Oil Or PCBs
283488	Whalley Precision Inc	28 Hudson Dr	Southwick	Generator Of Hazardous Waste	Small Quantity Generator Of Waste Oil Or PCBs
324974	Thomcast Communications Inc - Comark Div	104 Feeding Hills Road	Southwick	Generator Of Hazardous Waste	Small Quantity Generator

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class
MV4135695688	D&S Manufacturing Co	10 Hudson Dr	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
	Erik Shuette	90 Point Grove Rd	Southwick	Generator Of Hazardous Waste	Small Quantity Generator
MAV000011084	Lakeside Motors	96 Point Grove Rd	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
MAV000011495	New England Equipment	74 Foster Rd	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
MAD985267145	R. E. Humason Inc	56 Sam West Rd	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
MV4135695801	Rapid Oil Change	144 Berkshire Ave	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
MV4135690988	Rare Auto Inc	11 Sam West Rd	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
MAV000010483	Ray's Automotive	49 Sam West Rd	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
MV4135691254	Sheridan's Protech Auto	153 Point Grove Rd	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
339044	Westfield Gage Co	34 Hudson St	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator
378898	Pioneer Dairy Inc	214 Feeding Hills Rd	Southwick	Generator Of Hazardous Waste	Very Small Quantity Generator

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities may be located within the water supply protection area(s) that should be considered in local drinking water source protection planning.

Underground Storage Tanks

Facility Name	Address	Town	Description	Tank Type	Tank Leak Detection	Capacity (gal)	Contents
Saunder's Boat Livery Inc.	120 Congamond Rd	Southwick	Boat Livery	1 Wall	Approved In-Tank Monitor	4,000	Gasoline

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities may be located within the water supply protection area(s) that should be considered in local drinking water source protection planning.

APPENDIX C – 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
1-0000536	81 Point Grove Rd	SOUTHWICK	Unlisted
1-0014428	97 Feeding Hills Rd	SOUTHWICK	Oil

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