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

Marshfield 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	Marshfield Water Department
PWS Address	870 Moraine Street—2nd Floor
City/Town	Marshfield, Massachusetts
PWS ID Number	4171000
Local Contact	John Patch
Phone Number	(781) 834-5589

Introduction

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

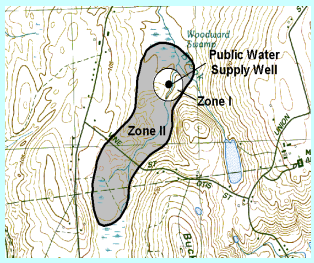
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

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

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.



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.

Section 1: Description of the Water System

IWPA ***Susceptibility:*** High

Well Names	***Source IDs***
Parsonage St. Well #1 (Inactive)	4171000-02G
Parsonage St. Well #2 (Inactive)	4171000-03G

Zone II #: 22 ***Susceptibility:*** High

Well Names	***Source IDs***
Ferry St. Well	4171000-11G
Church St. Well	4171000-13G

Zone II #: 71 ***Susceptibility:*** High

Well Names	***Source IDs***
Webster Well #1	4171000-10G
Webster Well #2	4171000-12G

Zone II #: 72 ***Susceptibility:*** High

Well Names	***Source IDs***
Mt Skirgo Wells (Wellfield)	4171000-01G

Zone II #: 111 ***Susceptibility:*** High

Well Names	***Source IDs***
Furnace Brook Well #1	4171000-04G
Furnace Brook Well #2	4171000-05G
Furnace Brook Well #3	4171000-06G
Furnace Brook Well #4	4171000-07G
South River St. Well	4171000-08G
Scholl St. Well	4171000-09G

Zone II #: 239 ***Susceptibility:*** High

Well Names	***Source IDs***
Spring St. Well	4171000-16G

Zone II #: 379 ***Susceptibility:*** High

Well Names	***Source IDs***
Union Station #1	4171000-14G
Union Station #2	4171000-15G

The Town of Marshfield's municipal drinking water supply consists of fifteen gravel packed wells and one wellfield, all located within six Zone II and one IWPA (see above table for details). Some of the Zone II areas extend in to the Towns of Pembroke and Duxbury. At this time Parsonage Street Wells #1 & #2 are inactive due to saltwater intrusion, however, an assessment of their IWPA is included in this report. The wellfield has a Zone I area of 250 feet from each wellpoint and the other wells each have a Zone I of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached maps to view the boundaries of the Zone Is, IWPA and Zone II.

All of the water that is pumped into the distribution system receives some form of treatment at the pump stations. Each well has its own pump station and lime feeder for corrosion control, and pumps directly into the distribution system. Three of the five wells in the Furnace Brook aquifer require filtration due to the presence of some volatile organic contaminants (VOCs). The wells that are treated for VOC removal are also disinfected with chlorine after treatment. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at http://www.epa.gov/safewater/ccr1.html.

Section 2: Land Uses in the Protection Areas

The Zone II and IWPA for Marshfield are dominated by forest, non-forested wetlands and residential land uses with smaller areas of commercial, waste disposal and light industrial land uses (refer to attached map 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 A.

Key Land Uses and Protection Issues include:

1. Inappropriate activities in Zone I
2. Residential land uses
3. Transportation corridors
4. Hazardous materials storage and use
5. Oil or hazardous material contamination sites
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.

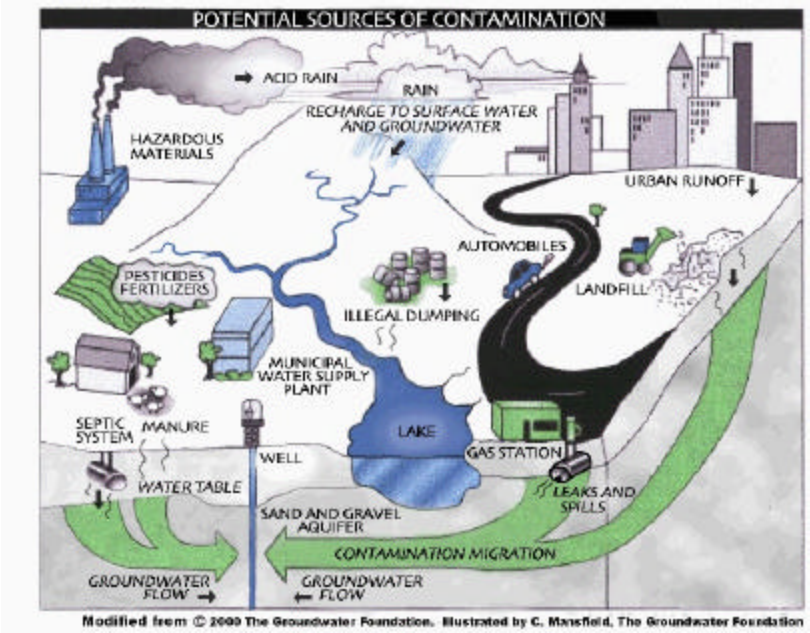
1. Inappropriate Activities in Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead except for the Mt. Skirgo Wells, which is classified as

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.



a wellfield, and has a 250 ft protective radius around each of the active eight wellpoints. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply 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. Three of Marshfield's sixteen Zone Is contain non water supply activities, they are:

Zone I: Furnace Brook Well #4 (4171000-04G) – Route 3A runs along the edge of the Zone I and there are residential land uses within the Zone I.

Zone I: Furnace Brook Well #3 (4171000-06G) – Route 3A runs through the Zone I and there are residential land uses within the Zone I.

Zone I: Scholl Street Well (4171000-09G) – Forest Street runs through the Zone I and there are residential land uses within the Zone I.

Zone I Recommendations:

- ✓ To the extent possible, remove all non water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non water supply activities out of the Zone I.

2. Residential Land Uses – Residential areas are prevalent throughout the Zone II and IWPA. About 33% of Marshfield is sewered, however, all of the areas in the Zone II use private septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead 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. 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.

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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.

For More Information

Contact Isabel Collins in DEP's Lakeville Office at (508) 946-2726 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

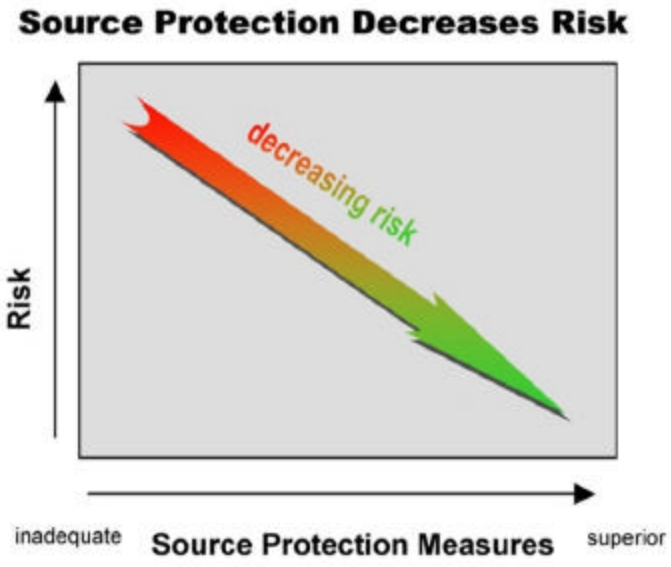

Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

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 Protection Areas (Zones I, II & IWPA)

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

Activities	Quantity	Threat*	Zone II#	Potential Source of Contamination
Agricultural				
Fertilizer Storage or Use	2	M	#71	Fertilizers: leaks, spills, improper handling, or over-application (Cranberry bogs and golf course)
Pesticide Storage or Use	2	H	#71	Pesticides: leaks, spills, improper handling, or over-application
Commercial				
Car/Truck/Bus Washes	1	L	#111	Vehicle wash water, soaps, oils, greases, metals, and salts: improper management
Gas Stations	8	H	#71, #72, #379 & IWPA	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	5	H	#111, 379 & IWPA	Automotive fluids and solvents: spills, leaks, or improper handling
Boat Yards/Builders	1	H	#111	Fuels, paints, and solvents: spills, leaks, or improper handling (Storage)
Cemeteries	1	M	#72	Over-application of pesticides: leaks, spills, improper handling; historic embalming fluids (Old)
Funeral Homes	1	L	IWPA	Hazardous chemicals: spills, leaks, or improper handling
Dry Cleaners	1	H	#111	Solvents and wastes: spills, leaks, or improper handling
Golf Courses	2	M	#71 & IWPA	Fertilizers or pesticides: over-application or improper handling
Medical Facilities	3	M	#111 & #379	Biological, chemical, and radioactive wastes: spills, leaks, or improper handling or storage (Two dental offices)
Nursing Homes	2	L	IWPA	Microbial contaminants: improper management
Railroad Tracks And Yards	1	H	#22, #71, #111 & IWPA	Herbicides: over-application or improper handling; leaks or spills; clandestine dumping (Old, abandoned)
Repair Shops (Engine, Appliances, Etc.)	3	H	#111, #239 & IWPA	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage
Research Laboratories	1	M	IWPA	Laboratory chemicals and wastes: spills, leaks, or improper handling or storage (Water Quality Testing)
Sand And Gravel Mining/Washing	1	M	#72	Heavy equipment, fuel storage, clandestine dumping: spills or leaks

Table 2 Continued: Land Use in the Protection Areas (Zones I, II & IWPA)

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

Activities	Quantity	Threat*	Zone II#	Potential Source of Contamination
Industrial				
Asphalt, Coal Tar, And Concrete Plants	1	M	#72	Hazardous chemicals and wastes: spills, leaks, or improper handling or storage
Fuel Oil Distributors	1	H	IWPA	Fuel oil: spills, leaks, or improper handling or storage
Hazardous Materials Storage	4	H	#71, #111, #379 & IWPA	Hazardous materials: spills, leaks, or improper handling or storage
RCRA TSDF Facilities	1	H	#111	Hazardous wastes: spills, leaks, or improper handling or storage (School, treatment of hazardous waste)
Residential				
Fuel Oil Storage (at residences)	Numerous	M	ALL	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	Numerous	M	ALL	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Numerous	M	ALL	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Aquatic Wildlife	Some	L	ALL	Microbial contaminants
Landfills and Dumps	2	H	#22 & #111	Seepage of leachate
Large Quantity Hazardous Waste Generators	1	H	IWPA	Hazardous materials and waste: spills, leaks, or improper handling or storage
Oil or Hazardous Material Sites	12	--	#22, #111, #379 & IWPA	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road And Maintenance Depots	1	M	IWPA	Deicing materials, automotive fluids, fuel storage, and other chemicals: spills, leaks, or improper handling or storage
Schools, Colleges, and Universities	2	M	#111	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Small quantity hazardous waste generators	6	M	#22, #111 & IWPA	Hazardous materials and waste: spills, leaks, or improper handling or storage
Stormwater Drains/ Retention Basins	Numerous	L	ALL	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way -	2	L	#22 & #71	Corridor maintenance pesticides: over-application or improper handling; construction
Transportation Corridors	Many	M	ALL	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling

Table 2 Continued: Land Use in the Protection Areas (Zones I, II & IWPA)

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

Activities	Quantity	Threat*	Zone II#	Potential Source of Contamination
Miscellaneous - Continued				
Utility Substation Transformers	3	L	#71, #111 &#379	Chemicals and other materials including PCBs: spills, leaks, or improper handling
Very Small Quantity Hazardous Waste	8	L	#22, #111 & IWPA	Hazardous materials and waste: spills, leaks, or improper handling or storage
Waste Transfer/ Recycling Station	1	M	#22	Water contacting waste materials: improper management, seepage, and runoff
Underground Storage Tanks	5	H	#71, #379 & IWPA	Stored materials: spills, leaks, or improper handling

Table 2 Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix A: 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 B: 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.

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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 C 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.
- ✓ Promote BMPs for stormwater management and pollution controls. Visit DEP's web site for additional information and assistance at http://www.state.ma.us/dep/brp/wm/nonpoint.htm.

3. Transportation Corridors - Route 3 and 3A intersect the Zone II #71, #72, #111 and #379. Local roads are common throughout all the Zone II. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and

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Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	**SOME**	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.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	**YES**	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	**YES**	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	**NO**	Continue monitoring non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	**YES**	The Town "Aquifer Protection District" bylaw meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp /dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	**YES**	Continue to work with neighboring communities regarding their wellhead protection controls for your Zone II areas.
Planning		
Does the PWS have a Wellhead Protection Plan?	**YES**	Use Wellhead Protection Committee to implement goals of plan.
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	**NO**	Formalize 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.
Does the municipality have a wellhead protection committee?	**NO**	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	**YES**	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/ dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	**YES**	Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

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wash in to catchbasins. An abandoned rail corridor intersects some of the protection areas.

Transportation Corridor Recommendations:

- ✓ Wherever possible, ensure that drains discharge stormwater outside of the Zone I.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained. Review storm drainage maps with emergency response teams.
- ✓ Work with the Town and State to best manage stormwater in the Zone II. Best management practices include street sweeping, vegetative swales, and regular catch basin inspection, cleaning and maintenance.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected if vegetation control is planned.

4. Hazardous Materials Storage and Use – Small areas of the Zone II and IWPA are used for commercial or industrial land uses. Activities associated with commercial and industrial land use are often the greatest concern when evaluating water supply protection. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

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 C and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floordrain requirements. See brochure "Industrial Floor Drains" for more information.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains twelve DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 4-0000866, 4-0000889, 4-0001172, 4-0001210, 4-0006010, 4-0006074, 4-0011993, 4-0012094, 4-0013222, 4-0013675, 4-0014025, 4-0015251. Refer to the attached map and Appendix B for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

6. Agricultural Activities – There are several cranberry bogs down gradient of the Webster Wells #1 & #2 in Zone II #71. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed.

Agricultural Activities Recommendation:

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 a 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 into the Zone II.
2. The groundwater in this area discharges to a 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.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/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

- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service farm plan to protect water supplies.
- ✓ Ensure that farmers within the Zone II maintain a pesticide license or certification with the Massachusetts Department of Food and Agriculture including all applicable training and recertification courses.
- ✓ Follow applicable Best Management Practices as published by the University of Massachusetts Cranberry experiment station.
- ✓ Work with farmers to investigate grants and loans designed to protect surface and groundwater. See http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf for more information on the USDA Environmental Quality Incentives Program (EQIP). Information on the MA Department of Food Agriculture's Agricultural Environmental Enhancement Program (AEEP) is available on the web at http://www.state.ma.us/dfa/programs/aeep/.

7. Protection Planning – Currently, the Town has the water supply protection controls that meet DEP's Wellhead Protection regulations 310 CMR 22.21(2) for all of its active wells. Protection planning protects drinking water by managing the land area that supplies water to a well. Marshfield has developed a Wellhead Protection Plan, which is a valuable tool for coordinating community efforts, identifying protection strategies, establishing a timeframe for implementation, and providing a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Establish a protection team to assist the community with implementation of the goals in the Wellhead Protection Plan.
- ✓ Coordinate efforts with local officials to ensure local wellhead protection controls are current with MA Wellhead Protection Regulations 310 CMR 22.21(2). 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/.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

❶ Reduces Risk to Human Health

❷ Cost Effective! Reduces or Eliminates Costs Associated With:

- Increased groundwater 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.

Other land uses and activities within the Zone II include gas stations, landfills and schools. Refer to Table 2 and Appendix A for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, Marshfield's Zone II and IWPA 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:

- Conducting a nitrate loading study at the Webster Wells to determine if sewering of residences in the Zone II will reduce the nitrate levels at the wells.
- Taking an active role in increasing security at the wells through increased police patrols, fencing and alarming.

Also, studying the feasibility of installing security cameras at pump stations.

- Passing the local controls, including floordrain health regulations, that meet DEP's Wellhead Protection Controls, 310 CMR 22.21(2).

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

- ✓ Continue Zone I inspections, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Develop a formal Emergency Response Plan.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ 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.

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 C.

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

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the 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. Regulated Facilities within the Water Supply Protection Area
B. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
C. Additional Documents on Source Protection

APPENDIX A: REGULATED FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREAS

DEP Permitted Facilities:

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class
32231	MARSHFIELD HILLS GARAGE	1944 MAIN ST	MARSHFIELD	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
33165	SAMPSON AUTO BODY	903 PLAIN ST	MARSHFIELD	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
37261	MARTINSON JUNIOR HIGH SCHOOL	FOREST ST	MARSHFIELD	Generator of Hazardous Waste	Small Quantity Generator
37458	ANASTASI BROTHERS CORP	853 PLAIN ST	MARSHFIELD	Generator of Hazardous Waste	RECYCLER - BURNER/BLENDER
37458	ANASTASI BROTHERS CORP	853 PLAIN ST	MARSHFIELD	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
39466	SYLVESTER RAY INC	CLAYPIT RD	MARSHFIELD	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
39466	SYLVESTER RAY DEMO LANDFILL	CLAY PIT RD	MARSHFIELD	Demolition Site	Closed Landfill
39468	MARSHFIELD MUNICIPAL LANDFILL	23 CLAY PIT RD	MARSHFIELD	Sanitary Landfill	Landfill
39468	MARSHFIELD TOWN OF	CLAY PIT RD	MARSHFIELD	Generator of Hazardous Waste	Small Quantity Generator
54107	SOUTHERN REDI MIX	CLAY PIT RD	MARSHFIELD	Generator of Hazardous Waste	Air Quality Permit
54107	SOUTHERN REDI MIX	CLAY PIT RD	MARSHFIELD	Plant	Air Quality Permit
54111	MARTINSON MIDDLE SCH	S. RIVER RD	MARSHFIELD	Plant	Air Quality Permit
130831	ANTONS CLEANERS OF MARSHFIELD	668 PLAIN RTE 139	MARSHFIELD	Generator of Hazardous Waste	Small Quantity Generator
130832	MARSHFIELD HIGH SCHOOL	89 FOREST ST	MARSHFIELD	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
130832	HIGH SCHOOL	FOREST ST	MARSHFIELD	Plant	Air Quality Permit
133960	STEVES EQUIPMENT SERVICE INC	15 CLAY PIT RD	MARSHFIELD	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste

DEP Permitted Facilities:

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class
133962	PLAZA CLEANERS	933R WEBSTER ST	MARSHFIELD	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
133962	PLAZA CLEANERS	933R WEBSTER ST	MARSHFIELD	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
205242	FURNACE BROOK MID SC	76 SOUTH RIVER RD.	MARSHFIELD	Plant	Air Quality Permit
262585	PUBLIC PETROLEUM INC	1933 OCEAN ST	MARSHFIELD	Fuel Dispenser	Fuel Dispenser
265178	MIDAS MUFFLER & BRAKE	2169 OCEAN ST	MARSHFIELD	Industrial Wastewater Holding Tank Approval	Industrial Waste Water Holding Tank
271362	MARSHFIELD AUTO CENTER	2126 OCEAN ST	MARSHFIELD	Generator of Hazardous Waste	Small Quantity Generator of Waste Oil or PCBs
280093	ONSITE LUBRICATION	846 WEBSTER ST	MARSHFIELD	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
280093	ONSITE LUBRICATION	846 WEBSTER ST	MARSHFIELD	Generator of Hazardous Waste	Very Small Quantity Generator of Waste Oil or PCBs
280093	ONSITE LUBRICATION	846 WEBSTER ST	MARSHFIELD	Generator of Hazardous Waste	Large Quantity Generator of Hazardous Waste
295555	CVS 832	SNOW RD	MARSHFIELD	Generator of Hazardous Waste	Small Quantity Generator
312891	BRITEWAY CAR WASH	535 PLAIN ST	MARSHFIELD	Ground Water Facility (BRP)	Groundwater Discharge
325515	SHELL 137791	2126 OCEAN ST	MARSHFIELD	Fuel Dispenser	Fuel Dispenser
333153	CVS 2401	1874 OCEAN RD	MARSHFIELD	Generator of Hazardous Waste	Large Quantity Generator of Hazardous Waste
337391	PLYMOUTH COLUN INC	125 ENTERPRISE DR	MARSHFIELD	Generator of Hazardous Waste	Small Quantity Generator of Waste Oil or PCBs
345009	SCITUATE RAY PRECAST	CLAY PIT RD	MARSHFIELD	Generator of Hazardous Waste	Air Quality Permit
358033	HESS 21324	2139 OCEAN ST	MARSHFIELD	Fuel Dispenser	Fuel Dispenser

DEP Permitted Facilities:

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class
358033	AMERADA HESS CORP	2139 OCEAN ST	MARSHFIELD	Generator of Hazardous Waste	Very Small Quantity Generator of Waste Oil or PCBs
367922	BROOKS PHARMACY	1900 OCEAN ST	MARSHFIELD	Generator of Hazardous Waste	Small Quantity Generator

Continues on following page.

DEP Permitted Facilities:

Underground Storage Tanks:

Facility Name	Address	Town	Tank Material	Tank Type	Tank Leak Detection	Capacity (gal)	Contents
HESS #21324 ID #13699	2139 OCEAN ST	MARSHFIELD	Reinforced	2 Walls	Interstitial Monitoring	10000	Gasoline
			Reinforced	2 Walls	Interstitial Monitoring	10000	Gasoline
			Reinforced	2 Walls	Interstitial Monitoring	10000	Gasoline
PETROL PLUS ID #13693	1933 OCEAN ST	MARSHFIELD	Steel	1 Wall		275	Fuel Oil
			Reinforced	2 Walls	Interstitial Monitoring	8000	Gasoline
			Reinforced	2 Walls	Interstitial Monitoring	8000	Gasoline
			Reinforced	2 Walls	Interstitial Monitoring	8000	Gasoline
MOBIL R/S #12720 ID #14010	208 CHURCH ST	PEMBROKE	Reinforced	1 Wall	Approved In-Tank Monitor	6000	Diesel
			Reinforced	1 Wall	Approved In-Tank Monitor	8000	Gasoline
			Reinforced	1 Wall	Approved In-Tank Monitor	10000	Gasoline
			Reinforced	1 Wall	Approved In-Tank Monitor	12000	Gasoline
			Reinforced	1 Wall	Approved In-Tank Monitor	1000	Waste Oil

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

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

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

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

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

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

RTN	Release Site Address	Town	Contaminant Type
4-0000866	668 PLAIN ST	MARSHFIELD	Hazardous Material
4-0000889	CLAY PIT RD	MARSHFIELD	Oil
4-0001172	89 FOREST ST	MARSHFIELD	Hazardous Material
4-0001210	PARSONAGE ST RTE 139	MARSHFIELD	Hazardous Material
4-0006010	1933 OCEAN ST	MARSHFIELD	Oil
4-0006074	CHURCH AND OAK ST	MARSHFIELD	Oil
4-0011993	1896 OCEAN ST	MARSHFIELD	Hazardous Material
4-0012094	535 PLAIN ST	MARSHFIELD	Hazardous Material
4-0013222	700 PLAIN ST	MARSHFIELD	Oil
4-0013675	696 PLAIN ST	MARSHFIELD	Hazardous Material
4-0014025	714 WEBSTER ST	MARSHFIELD	Oil
4-0015251	1901 OCEAN ST	MARSHFIELD	Oil and Hazardous Material

For more location information, please see the attached map. The map lists the release sites by RTN.
* Site recently classified, not reflected in current GIS map.