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

Canton Water and Sewer Division

What is SWAP?

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

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

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	Canton Water and Sewer Division
PWS Address	801 Washington Street
City/Town	Canton, Massachusetts
PWS ID Number	3050000
Local Contact	Ron Redquest - General Supervisor
Phone Number	(781) 821-5017

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.

Section 1: Description of the Water System

Zone II #: 223 — *Susceptibility:* High

Well Names	*Source IDs*
Well #4 (Pecunit Street)	3050000-06G

Zone II #: 224 — *Susceptibility:* High

Well Names	*Source IDs*
Well #5 (Forest Ave.)	3050000-07G
Well #7 (Neponset Street)	3050000-09G
Well #10 (Forest Ave.)	3050000-10G

IWPA — *Susceptibility:* High

Well Names	*Source IDs*
Well #1 (Washington Street)	3050000-01G

The water for the Canton Water and Sewer Division comes from five wells in two Zone IIs and an IWPA. Water is also purchased from the Massachusetts Water Resources Authority (MWRA); a copy of the SWAP report for the MWRA is attached. Each well has a Zone I of 400 feet. Wells #1 and #7 are inactive, but are included in this report. The Zone II #224 for Wells #5, #7, and #10 extends in to the towns of Norwood and Sharon. The IWPA for Well #1 extends from Stoughton into Canton. The wells are located in an aquifer 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 map to view the boundaries of the Zone II.

The three active wells are treated for corrosion control and fluoridated for dental health. 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.

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.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

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.

Section 2: Land Uses in the Protection Areas

The Zone IIs and IWPA for Canton are a mixture of residential, commercial, 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 B.

Key Land Uses and Protection Issues include:

1. 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. 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. 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. The Zone Is for Well #1, #5, and #10 are owned or controlled by the public water system, but the Zone Is for Well #4 and Well #7 are not. 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. The Zone I for Well #4 includes a fairway for a golf course which works with the water supplier to use BMPs to protect the source. The Zone I for Well #7 contains a small corner of an industrial building that is connected to municipal sewer on the edge of 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 – Much of the Zone IIs and IWPA consists of residential areas. Most of the areas have public sewers, but some areas still use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

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

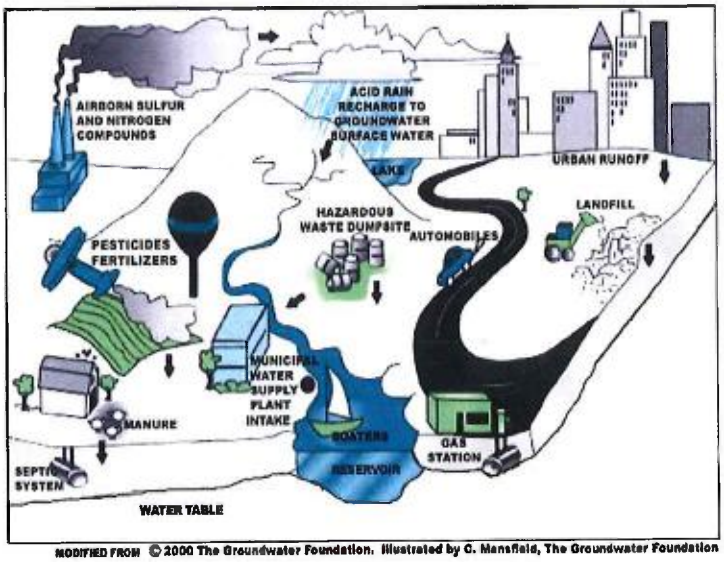

Figure 1: Sample watershed with examples of potential sources of contami-

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.

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.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Transportation Corridors - Route 95 runs through the Zone II for Wells #5, 7 and 10. Local roads are common throughout 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 wash in to catch basins.

Railroad tracks run through the Zone II for Wells #5, 7, and 10. 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:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone II.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams.
- ✓ 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.

4. Hazardous Materials Storage and Use – A small percent of the land area within the Zone IIs and IWPA is 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 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.

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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.

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.

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 and II)

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

Activities	Quantity	Threat*	Location	Potential Source of Contamination
Commercial				
Gas Stations	2	H	Zone II #224	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	1	H	Zone II #224	Automotive fluids and solvents: spills, leaks, or improper handling
Cemeteries	2	M	Both Zone IIs	Over-application of pesticides: leaks, spills, improper handling; historic embalming fluids
Golf Courses	2	M	Both Zone IIs	Fertilizers or pesticides: over-application or improper handling
Junk Yards and Salvage Yards	1	H	IWPA	Automotive chemicals, wastes, and batteries: spills, leaks, or improper handling
Medical Facilities	1	M	Zone II #223	Biological, chemical, and radioactive wastes: spills, leaks, or improper handling or storage
Photo Processors	1	H	Zone II #224	Photographic chemicals: spills, leaks, or improper handling or storage
Railroad Tracks and Yards	1	H	Zone II #224	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills
Industrial				
Industry/ Industrial Parks	1	H	Zone II #224	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Paper Manufacturers	1	H	Zone II #223	Bleaches, dyes, waste products, and other chemicals: spills, leaks, or improper handling or storage
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	Zone II #224	Hazardous chemicals: microbial contaminants, and improper disposal

Activities	Quantity	Threat*	Location	Potential Source of Contamination
Miscellaneous				
Aboveground Storage Tanks	4	M	Zone II #223	Materials stored in tanks: spills, leaks, or improper handling
Schools, Colleges, and Universities	3	M	Zone II #223	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Stormwater Drains/ Retention Basins	Numerous	L	Both Zone IIs	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way: Gas	1	L	Zone II #223	Corridor maintenance pesticides: over-application or improper handling; construction
Transportation Corridors	1	M	Zone II #224	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Wastewater Treatment Plant/ Collection Facility/ Lagoon	1	M	Zone II #224	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper management

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.

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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 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.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0012555, 3-0000941, 3-0020140, 3-0003928, 3-0003538, 3-0000635. Refer to the attached map and Appendix C for more information.

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.