



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

<i>PWS Name</i>	Attleboro Water Division
<i>PWS Address</i>	77 Park Street
<i>City/Town</i>	Attleboro, MA
<i>PWS ID Number</i>	4016000
<i>Local Contact</i>	Paul Nicholson, Superintendent, Department of Water & Wastewater
<i>Phone Number</i>	508-222-0019

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.

This report includes the following sections:

1. Description of the Water System;
2. Land Uses in the Protection Areas;
3. Source Water Protection;
4. Source Water Protection Recommendations;
5. Additional Resources Available for Source Water Protection; and
6. Appendices.

Glossary

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

<i>Surface Water Sources</i>		<i>Susceptibility: High</i>
<i>Source Name</i>	<i>Source ID #</i>	
Manchester Reservoir	4016000-03S	
Orr's Pond	4016000-04S	
Wading River	4016000-05S	

The Attleboro Water Division supplies drinking water to over 40,000 people in Attleboro, North Attleboro and Mansfield. There are three active surface water sources in the system: Manchester Reservoir, Orr's Pond and the Wading River. Water from Hoppin Hill Reservoir in North Attleboro flows into the Seven Mile River. This water spills into Luther Reservoir and then can be pumped to Manchester Reservoir or to Orr's Pond where there is a deep water intake. Manchester Reservoir and Orr's Pond are located in Attleboro. Their watershed extends into North Attleboro and Plainville. The surface impoundment on the Wading River is located in Mansfield. That watershed extends into Foxborough, Wrentham and Plainville, with small portions in North Attleboro and Norfolk.

For a copy of the Attleboro Water Division's Consumer Confidence Report or for current information on monitoring results and treatment, please call the system's contact person listed in Table 1. 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 Watersheds

The land uses within the watersheds consist of a mix of undeveloped forested land, residential development, businesses, agriculture, recreation and protected lands. Geographic Information Systems (GIS) maps showing the watershed boundaries, Zone A and the percentages of land uses in the watersheds is provided as part of this report. Section 3 discusses protection measures implemented by the Attleboro Water Division.

Protected open space is found in the following percentages in each watershed - Manchester Reservoir and Orr's Pond, 28%, and the Wading River, 38%.

Key Land Uses and Protection Issues include:

1. Aquatic Wildlife
2. Agriculture
3. Transportation Corridors
4. Transmission Lines
5. Residential Land Uses
6. Recreation
7. Active Underground Storage Tanks
8. National Pollutant Discharge Elimination System (NPDES) Major Discharge
9. small portion of a capped Solid Waste Facility
10. Oil or Hazardous Material Release Sites

1. **Aquatic Wildlife (Birds)** - Gulls are seasonally present on the surface waters. Waterfowl may increase coliform levels through the release of fecal matter into the water and may also carry other bacteria and viruses. Waterfowl management techniques may include noise and visual harassment, habitat modification and control of food sources. Appendix A contains a DEP fact sheet titled *What You Need To Know About Microbial Contamination*.

Aquatic Wildlife Recommendations:

- ✓ Observe wildlife populations in and around the reservoirs.
- ✓ Where necessary, discourage and control aquatic wildlife. See <http://mass.gov/dep/brp/dws/protect.htm> for guidance and permits.

2. **Agriculture** - Pasture and cropland comprise about 10% of the watershed of Manchester Reservoir and Orr's Pond. Runoff from these sites can cause fertilizers, bacteria, pesticides and other contaminants to enter surface waters. Runoff can be controlled through the use of appropriate Best Management Practices (BMPs) and other source protection measures. The Massachusetts Drinking Water Regulations prohibit domestic animals from within 100 feet of a public drinking water reservoir and its tributaries.

Agricultural Recommendations:

- ✓ Educate owners of small farms about watershed protection. DEP's web site has horsekeeping and manure management fact sheets at mass.gov/dep/consumer/animal.htm.
- ✓ The Massachusetts Department of Food & Agriculture's booklet titled "On-Farm Strategies to Protect Water Quality—An Assessment & Planning Tool for Best Management Practices" (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.

3. **Transportation Corridors (Local Roads and Highways)** are located adjacent to the reservoirs and throughout the watersheds. Interstate Routes 95 and 295 are located in the watershed for Manchester Reservoir and Orr's Pond. Interstate Routes 95 and 495 are located upstream of the surface impoundment on the Wading River.

Untreated stormwater and spills are the primary concerns. 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.

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. Potential contaminants may come from automotive leaks, maintenance, washing, or accidents.

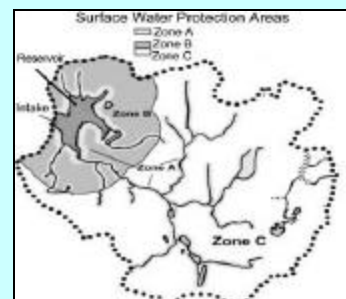
This is a difficult issue to address since most of the roads are not located within the community served by this system. Establishing vegetated buffers, scheduling regular street sweeping and conducting emergency drills can help to address impacts from roads. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

Transportation Corridor Recommendations:

- ✓ Regularly inspect watersheds 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 Town and State 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 are not available yet, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

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.



4. Transmission (Utility) Lines (herbicide applications) - A transmission line runs through the watershed south of Orr's Pond in Attleboro and along the western edge of the Wading River watershed in North Attleboro and Plainville. These are potential sources of contamination because of the possibility of over-application or improper handling of herbicides during rights-of-way maintenance.

The Rights-of-Way Management Regulations (333 CMR 11.00) were designed to minimize any potential harmful effects of herbicides use for vegetation control along rights-of-way in Massachusetts. The regulations promote the use of an Integrated Pest Management (IPM) approach to vegetation control and require application setback distances to protect drinking water sources and other environmentally sensitive areas. Utilities must submit a Vegetation Management Plan (VMP) and a Yearly Operating Plan (YOP) to the Mass. Department of Food and Agriculture for approval and to the municipalities into which herbicide application is proposed.

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.

Transmission (Utility) Lines Recommendation:

- ✓ Monitor the YOP to ensure that pesticide applications will minimize impacts on drinking water sources.

5. Residential - Seventeen (17) percent of the Manchester/Orr's watershed and 22% of the Wading River watershed consist of residential use. Significant portions of the watersheds (44% and 57%, respectively) are undeveloped forest with the potential for more residential development. The Massachusetts Executive Office of Environmental Affairs (EOEA)'s web site, www.state.ma.us/envir/, provides detailed information and maps about the build-out of developable land in communities in Massachusetts.

If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to surface water contamination. Household hazardous wastes include automotive wastes, paints, solvents and other substances that should be disposed of properly at a municipal collection site. If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Improperly applied fertilizers and pesticides can wash off lawns and into surface waters. Pet waste may contain bacteria, parasites or viruses that are health risks.

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.
- ✓ See www.state.ma.us/envir/ to obtain information on the build-out analyses for communities into which the protection areas extend.



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

- ✓ Work with town officials to control residential growth on undeveloped land.
- ✓ Post water supply awareness signs on streets throughout the watersheds.
- ✓ Work with town boards to review and provide recommendations on proposed watershed development.

6. Recreation - The Massachusetts Drinking Water Regulations, 310 CMR 22.00, prohibit swimming and other bodily contact with a reservoir and its tributaries. Other activities, such as fishing and boating, are left up to the discretion of the local Board of Water Commissioners or like body having jurisdiction over the drinking water.

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 Watershed

Land Uses	Quantity	Threat	Potential Sources of Contamination*
Agricultural			
Fertilizer Storage or Use	Few	M	leaks, spills, improper handling, or over-application of fertilizers
Pesticide Storage or Use	Few	H	leaks, spills, improper handling, or over-application of pesticides
Manure Spreading	Few	H	erosion; improper handling or storage of manure
Residential			
Fuel Oil Storage (at residences)	Numerous	M	spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	Numerous	M	over-application or improper storage and disposal of pesticides
Septic Systems / Cesspools	Numerous	M	microbial contaminants, improper disposal of hazardous chemicals
Miscellaneous			
Aquatic Wildlife	Seasonal	H	microbial contaminants
Hiking/Fishing/Other Recreation	Seasonal	M	microbial contaminants
Transportation Corridors	Routes 95, 295, 495; local roads	H	stormwater; road salt; leaks or spills of fuels and other hazardous materials; over-application or improper handling of pesticides; erosion from construction
Transmission Lines	1	H	spills from over-application or improper handling of pesticides; erosion from construction
DEP Tier Classified Oil or Hazardous Materials	6	not ranked	see Appendix C for more information

Notes:

- When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities 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.
 - For more information on regulated facilities, refer to Appendix B.
 - For information about Oil or Hazardous Materials Sites, refer to Appendix C.
- * **THREAT RANKING** - Where there are two rankings, the first is for ground water, the second for surface water. 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.

Land Uses	Quantity	Threat	Potential Sources of Contamination*
Miscellaneous (continued)			
part of a capped solid waste facility - site owner has an Air Operating Permit and is listed as a Large Quantity Generator of Hazardous Waste (LQG) and a Hazardous Waste Treatment, Storage and/or Disposal Facility (TSDF)	1	H	seepage of leachate; surface runoff; erosion
NPDES major discharge	1	H	unintended release of materials
active underground storage tanks	< 10 in GIS database	M	spills, leaks or improper handling of stored materials

Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities 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.
 3. For information about Oil or Hazardous Materials Sites, refer to Appendix C.
- * **THREAT RANKING** - Where there are two rankings, the first is for ground water, the second for surface water. 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.

Recreation Recommendations:

- ✓ If activities are allowed, a set of rules should be adopted by the Water Commissioners, inspections should be conducted to ensure adherence to the rules and users should be educated about drinking water protection.
- ✓ The water system may establish a more stringent buffer area depending upon local conditions such as soils, topography and proximity to intakes.

7. **Active Underground Storage Tanks** - There are underground storage tanks located within both watersheds.

UST Recommendation:

- ✓ Encourage the owners of the tanks to install secondary containment.

8. **NPDES Discharge** - There is a facility with a NPDES discharge within the watershed of Manchester and Orr's Ponds.

NPDES Recommendation:

- ✓ Ask to be contacted by the facility operator in the case of spills or unexpected releases of wastewater or chemicals.

9. **Capped Solid Waste Facility** - a small portion of a capped solid waste landfill is located within the Wading River watershed north of Route 495. A monitoring program is in place.

Solid Waste Recommendation:

- ✓ Review test results from the monitoring program.

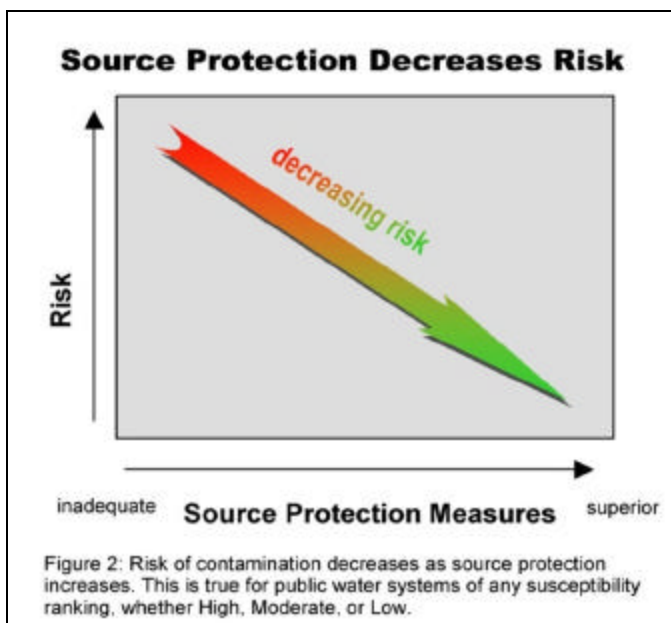
10. **Oil or Hazardous Material Release Sites** - DEP Tier Classified Oil or Hazardous Material Release Sites are located within the watershed of the Wading River. Refer to the attached GIS map and Appendix C for more information.

Oil/Hazardous Materials Recommendation:

- ✓ Educate 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.

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ 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.



Section 3: Source Water Protection

As with many water supply protection areas, this system's watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. **The Attleboro Water Division is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas.**

The Water Division performs frequent watershed inspections; monitors public access to water supply lands; and conducts educational programs in the schools. In addition, the Water Division works cooperatively with other town boards to review and comment on proposed plans for development in the watersheds and purchased an additional 50-acre parcel of land within the Manchester Reservoir watershed.

Section 4: Source Water Protection Recommendations

- | develop a waterfowl management program
- | do not allow domestic animals closer than 100 ft. from the reservoirs (or more, depending upon local conditions, such as soils, topography, location of intake)
- | work with farmers to incorporate best management practices into their operations
- | maintain signs denoting the public water supply lands
- | continue to conduct regular inspections
- | communicate with watershed communities about protection measures and emergency response
- | stay aware of proposed new and expanding development within the watersheds
- | provide comments to local town boards on proposals for development, where appropriate
- | provide technical assistance and educational programs (start with residents within Zone A)
- | work with the watershed communities and Mass Highway to limit the amount of deicing chemicals used on the roads
- | encourage stormwater improvement projects on local and state roads
- | request that street sweeping be conducted on a regular, seasonal basis

Section 5: Additional Resources Available for Source Water Protection

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

Information about DEP Tier Classified Oil or Hazardous Material Release Sites can be obtained at DEP's Bureau of Waste Site Cleanup's web site, www.state.ma.us/dep/bwsc. Sites are identified on the attached GIS map and site specific information is available in Appendix C.

Section 6: Appendices

- A. Fact Sheets - *What You Need to Know About Microbial Contamination, Water Suppliers Protect Drinking Water, Residents Protect Drinking Water, Boards of Health Protect Drinking Water, Planners Protect Drinking Water and DPWs Protect Drinking Water.*
- B. List of Regulated Facilities.
- C. Table of Tier Classified Oil and/or Hazardous Material Sites.

For More Information

www.state.ma.us/dep

The following DEP staff can be contacted for more information and assistance on improving watershed protection.

Mike Quink, 508-946-2766, DEP's Southeast Regional office

Kathy Romero, 617-292-5727, DEP's Boston office

For More Information

Contact Mike Quink in DEP's Lakeville office at (508) 946-2766 for more information and assistance on improving current protection measures.

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

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

Table 3: Current Protection and Recommendations

Protection Measures	Status	Comments/Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	NO	Monitor Zone A activities. See 310 CMR 22.20B for Zone A restrictions.
Is the Zone A posted with Public Drinking Water Supply signs?	YES	Economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	YES	Continue inspections of drinking water protection areas.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C(2)?	NO	Refer to 310 CMR 22.20C(2), and mass.gov/dep/brp/dws/ for model by-laws, health regulations, and current state regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Stay aware of proposed development in the watershed and Zone II and provide recommendations on protection measures to town boards.
Planning		
Does the PWS have a DEP-approved surface water supply protection plan?	NO	Refer to <i>Developing a Local Surface Water Supply Protection Plan</i> available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal Emergency Response Plan to deal with spills or other emergencies?	YES	Coordinate an emergency response drill with the local team.
Does the municipality have a water supply protection committee?	NO	The Water Division Superintendent works with community groups to promote water supply awareness and protection.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	For more guidance see <i>Hazardous Materials Management: A Community's Guide</i> at www.state.ma.us/dep/brp/dws/files/hazmat.doc .
Does the PWS provide water supply protection education?	YES	Continue to educate residents about their role in drinking water protection. Appendix A contains the fact sheet <i>Residents Protect Drinking Water</i> .