



Sudbury and Foss Reservoirs Watershed 2010 Public Access Plan Update



July 2010

Massachusetts Department of Conservation and Recreation
Division of Water Supply Protection
Office of Watershed Management

Abstract

The *Sudbury and Foss Reservoirs 2010 Public Access Plan Update* establishes policies and develops an implementation strategy that controls the impacts to water quality from human activities on Department of Conservation and Recreation, Division of Water Supply Protection property in the Sudbury and Foss Reservoirs watershed.

Acknowledgements

This plan was prepared by the staff of the Department of Conservation and Recreation, Division of Water Supply Protection, Office of Watershed Management. Principal authors are John Scannell, Regional Director, Wachusett/Sudbury Section and Joel Zimmerman, Regional Planner. All maps were produced by Craig Fitzgerald using DCR and MassGIS data.



Commonwealth of Massachusetts

Deval L. Patrick, Governor

Timothy P. Murray, Lt. Governor

Ian A. Bowles, Secretary, Executive Office of Energy and Environmental Affairs

Richard K. Sullivan, Jr. Commissioner, Department of Conservation and Recreation

Jonathan L. Yeo, Director, Division of Water Supply Protection

Sudbury and Foss Reservoirs Watershed 2010 Public Access Plan Update

Table of Contents

I. INTRODUCTION	1
A. PURPOSE OF THE PUBLIC ACCESS PLAN	1
B. SUDBURY AND FOSS RESERVOIR WATERSHED PLAN HISTORY	3
1. 1994 Access Plan	3
2. 1997 Watershed Protection Plan	3
3. 2002 Access Plan Update.....	3
4. 2005 Land Management Plan	4
5. 2008 Watershed Protection Plan Update.....	4
C. 2010 ACCESS PLAN UPDATE	4
II. WATERSHED DESCRIPTION	5
A. BASIN LOCATION AND HISTORY	5
B. INFRASTRUCTURE	7
C. NATURAL CHARACTERISTICS	9
1. Topography	9
2. Geology	9
3. Vegetation	9
4. Hydrology.....	10
D. LAND USE	10
E. PROTECTED OPEN SPACE	11
1. DCR-Watershed Holdings.....	12
2. Payments in Lieu of Taxes (PILOT).....	12
III. PUBLIC ACCESS POLICIES	17
A. EMERGENCY SOURCE WATER SUPPLY ISSUES	17
B. RECREATIONAL ACTIVITIES	18
1. Water Contact Activities.....	18
2. Boating (Motorized and Non-motorized)	18
3. Fishing	18
4. Off-Road Driving	18
5. Horseback Riding.....	19
6. Dogs and Other Pets	19
7. Camping	19
8. Hunting and Trapping.....	19
9. Hiking, Nature Study, Bird Watching, Snowshoeing.....	19
10. Bicycle Riding	20
11. Cross-Country Skiing.....	20
12. Picnicking.....	20
13. Geocaching	20
C. PUBLIC ACCESS ISSUES	21
1. Trespassing	21
2. Encroachments.....	21
3. Foss Reservoir Access.....	22
4. Westborough State Hospital.....	22
D. 2010 ACCESS POLICIES	22

IV. IMPLEMENTATION	27
A. 2002 IMPLEMENTATION REVIEW.....	27
B. 2010 IMPLEMENTATION PLAN.....	30
REFERENCES	32
APPENDIX: AWWA RECREATION POLICY	33

Figures

FIGURE 1: DCR/MWRA WATER SUPPLY SYSTEM.....	2
FIGURE 2: SUASCO BASIN AND THE SUDBURY RESERVOIR WATERSHED SYSTEM SUB-BASINS.....	6
FIGURE 3: SUDBURY AND FOSS RESERVOIRS WATERSHED HYDROGRAPHY	8
FIGURE 4: SUDBURY AND FOSS RESERVOIRS WATERSHED LAND USE.....	11
FIGURE 5: SUDBURY AND FOSS RESERVOIRS WATERSHED PROTECTED OPEN SPACE	13
FIGURE 6: PUBLIC ACCESS ZONES IN THE SUDBURY AND FOSS RESERVOIRS WATERSHED	24
FIGURE 7: PUBLIC ACCESS AT THE SUDBURY RESERVOIR	25

Tables

TABLE 1: SUDBURY AND FOSS RESERVOIR INFORMATION	7
TABLE 2: SUDBURY AND FOSS RESERVOIRS WATERSHED LAND COVER AND LAND USE	10
TABLE 3: SUDBURY AND FOSS RESERVOIRS WATERSHED OPEN SPACE OWNERSHIP.....	12
TABLE 4: SUDBURY AND FOSS RESERVOIRS WATERSHED PAYMENTS IN LIEU OF TAXES	14
TABLE 5: DCR PUBLIC ACCESS POLICY SUMMARY FOR THE SUDBURY AND FOSS RESERVOIRS WATERSHED.....	23
TABLE 6: 2002 ACCESS PLAN IMPLEMENTATION OBJECTIVES AND ACHIEVEMENTS.....	28
TABLE 7: 2010 ACCESS PLAN NEEDS ASSESSMENT AND IMPLEMENTATION OBJECTIVES	30

I. Introduction

The Massachusetts Department of Conservation and Recreation, Division of Water Supply Protection, Office of Watershed Management (DCR/DWSP or DCR-Watershed) manages and protects the drinking water supply watersheds that provide water for distribution by the Massachusetts Water Resources Authority (MWRA) to approximately 2.2 million Massachusetts residents. The source of water for the DCR/MWRA water system comes from three separate watersheds: Quabbin Reservoir, Ware River, and Wachusett Reservoir. The Sudbury and Foss (Framingham #3) Reservoirs are the emergency source water supplies for this drinking water supply (Figure 1).

The Sudbury and Foss Reservoirs are much less critical to the daily drinking water needs of greater Boston than the active sources, and thus do not require the same level of vigilant monitoring, inspection, and overall management. The Commonwealth's resources nevertheless need to be maintained and protected from degradation.

The *2008 Sudbury and Foss Reservoirs Watershed Protection Plan* states the following goal for DCR Watershed's management of its property in this basin:

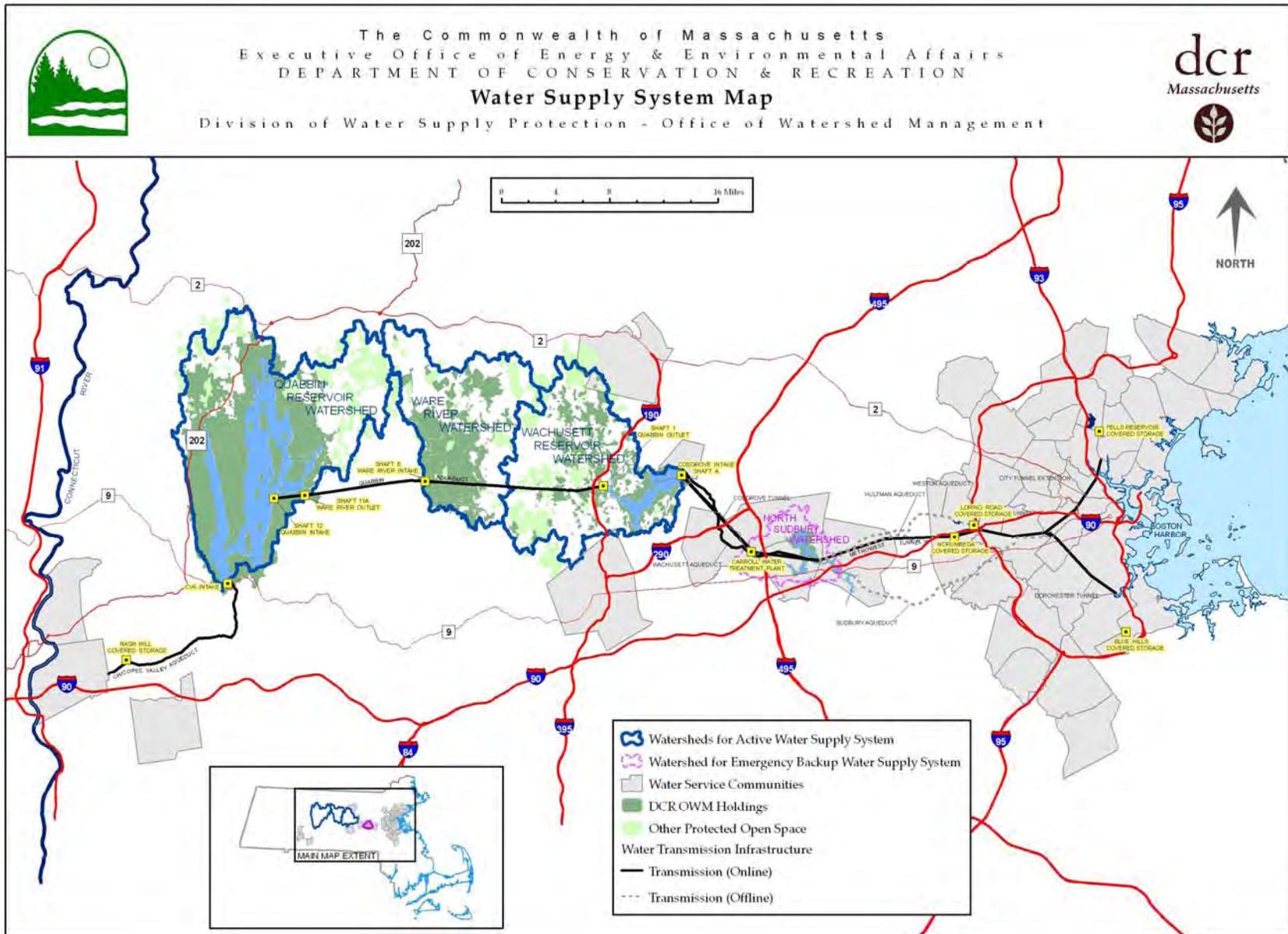
Maintain the integrity of DCR lands and waters in the Sudbury and Foss Reservoir watersheds for water quality protection purposes in order to serve as an emergency source water supply.

The *Sudbury and Foss Reservoirs 2010 Public Access Plan Update* helps DCR meet this goal by establishing polices and developing an implementation strategy that controls the impacts to water quality from human activities on DCR Watershed property. Please refer to the *2008 Sudbury and Foss Reservoirs Watershed Protection Plan* for a complete discussion on regulatory and monitoring programs.

A. Purpose of the Public Access Plan

The purpose of DCR-Watershed's Public Access Plans is to guide and control public access, incorporating the most current information available, so as to minimize the impacts from recreational activities on the drinking water supply lands managed by DCR. The federal Safe Drinking Water Act and Amendments, state drinking water regulations, and the Department of Conservation and Recreation's Watershed Protection Regulations (350 CMR 11.00) require that public access on drinking water supply lands must be managed to minimize the risk of waterborne disease and to control other human impacts. The primary function of these water supply lands is to protect and provide high quality drinking water for current and future generations. DCR-Watershed's access plans detail management rationale and explain which programs and activities are used to limit and control access to these lands and waters.

Figure 1: DCR/MWRA Water Supply System



Public access, in DCR/DWSP's management context, is a wide-ranging concept. It includes the physical ability to enter and use land for recreational activities; the legal restrictions or prohibitions related to access or specific land or water-based recreational activities; sign placement; mapping; user education; intergovernmental coordination; public safety; and protection of public and private property rights.

B. Sudbury and Foss Reservoir Watershed Plan History

Chapter 372 of the Acts of 1984 requires DCR-Watershed to adopt watershed management plans for lands under its care and control, including policies for recreational use of watershed lands. The following are a brief description of the agency's plans for the Sudbury and Foss Reservoirs watershed.

1. 1994 Access Plan

DCR's predecessor agency, the Metropolitan District Commission (MDC), completed the first Public Access Plan in 1994 for its lands in the Sudbury Reservoir watershed. The *Public Access Plan for the MDC Sudbury Watershed* generally maintained public access policies that had been in place in the Sudbury System lands for decades. The plan focused on three key elements of resource management: access control, use restrictions, and improved enforcement of existing regulations and policies. Policies were developed to support a protection strategy which included restoration from existing past use impacts and minimization of the potential impacts to water quality and natural resources from permissible recreation activities.

2. 1997 Watershed Protection Plan

Watershed Protection Plans are an important tool used by DCR-Watershed to implement programs that enable staff to carry out its mission to utilize and conserve water and other natural resources to protect, preserve and enhance the environment of the Commonwealth and to assure the availability of pure water for future generations. The MDC and MWRA completed the *Watershed Protection Plan for Sudbury Reservoir and Framingham Reservoir #3* in 1997. The plan was initiated by the agencies to determine appropriate water quality goals for this reserve drinking water supply and to develop a watershed protection plan to meet those goals while balancing available fiscal and human resources. The plan recognized that the strongest protection measure for this reserve drinking water supply is the protected lands owned by the state.

3. 2002 Access Plan Update

The 1994 *Public Access Plan for the MDC Sudbury Watershed* outlined an aggressive schedule for access controls, education, enforcement, site restoration, and pilot programs for access to less critical lands. Unfortunately, financial and personnel resources envisioned in the 1994 Plan did not meet the levels needed to fully implement recommendations. In addition, there had been a steady increase in the demand for additional recreational opportunities on all Commonwealth lands. The 2002 *Sudbury Reservoir Watershed System Public Access Plan Update* revised implementation priorities, re-assessed the public's recreational desires, and developed a response

to evaluate these demands with the Division's primary goals of water supply and resource protection. The most noteworthy change from the 1994 Plan was the expansion of the area around the Sudbury Reservoir where public access is allowed.

4. 2005 Land Management Plan

DCR-Watershed has developed 10-year Land Management Plans for each of the four watersheds in the DCR/MWRA water supply system. The primary goal of these plans is to provide the best possible vegetative cover throughout the watersheds for protecting tributary and reservoir water quality. The most important objective of these plans is to maintain the functioning of the watershed protection forest, in both the short and long terms, by first correcting deficiencies in pine plantations and understory development, and then working steadily to produce a vigorous, diverse, stable, multi-layered forest cover. In the process of reaching the above objectives, DCR-Watershed simultaneously address the protection of wildlife, biological diversity, and cultural resources. In addition, the Land Management Plans provide a framework for staff to maintain property boundaries, identify and work to quickly resolve boundary encroachments, enforce public access guidelines, protect against fires, and maintain access roads.

The *Land Management Plan for the Watersheds of the Sudbury Reservoirs: 2005-2014* presents a comprehensive approach to the management of the natural resources within the Sudbury and Foss Reservoirs watersheds. This plan synthesizes a large body of research, literature, and staff expertise on the focused goal of protecting and enhancing the natural filtration capabilities of the more than 2,300 acres of DCR property surrounding the Sudbury and Foss Reservoirs.

5. 2008 Watershed Protection Plan Update

A multi-volume set of plans was adopted in 2008 that updated the Watershed Protection Plans for the entire DCR/MWRA Watershed System, including the Sudbury and Foss Reservoirs watersheds. The *2008 Watershed Protection Plan* continues DCR's successful efforts of managing the source of an unfiltered water supply. This plan provides a structured methodology to assess changes in watershed threats, develops programs to address the threats, and prioritizes staff assignments so they are congruent with current watershed management issues. Each volume concludes with a five year work plan that presents major tasks for the Division of Water Supply Protection to achieve from Fiscal Years 2009 to 2013.

C. 2010 Access Plan Update

It is prudent to periodically revisit the Plan to identify changes in existing conditions, to identify and evaluate the policies that have been implemented, and to assess additional needs to meet the mandate of water quality and resource protection. The *2008 Watershed Protection Plan* identified the update of the Sudbury and Foss Reservoirs Access Plan as an objective to complete in Fiscal Year 2010.

II. Watershed Description

A. Basin Location and History

The Boston Water Board began construction in 1878 on a system of seven reservoirs by holding back portions of the Sudbury River: the Sudbury, Whitehall, Hopkinton, Ashland, Stearns, Brackett, and Foss (the last three referred to respectively as Framingham Reservoirs Nos. 1, 2, and 3). This original Sudbury drinking water supply system watershed, a sub-basin within the Sudbury-Assabet-Concord (SuAsCo) drainage basin, consists of 47,841 acres, or 74.7 square miles, divided geographically into a North and South Basin (Figure 2). The North Basin is the smaller of the two sub-basins, encompassing 17,782 acres (27.6 sq. mi., including the reservoirs). Both the North and South Basins drain into Stearns Reservoir. Releases from Stearns Reservoir flow into the Sudbury River at the Winter Street Dam and continue east towards the Assabet and Concord Rivers.

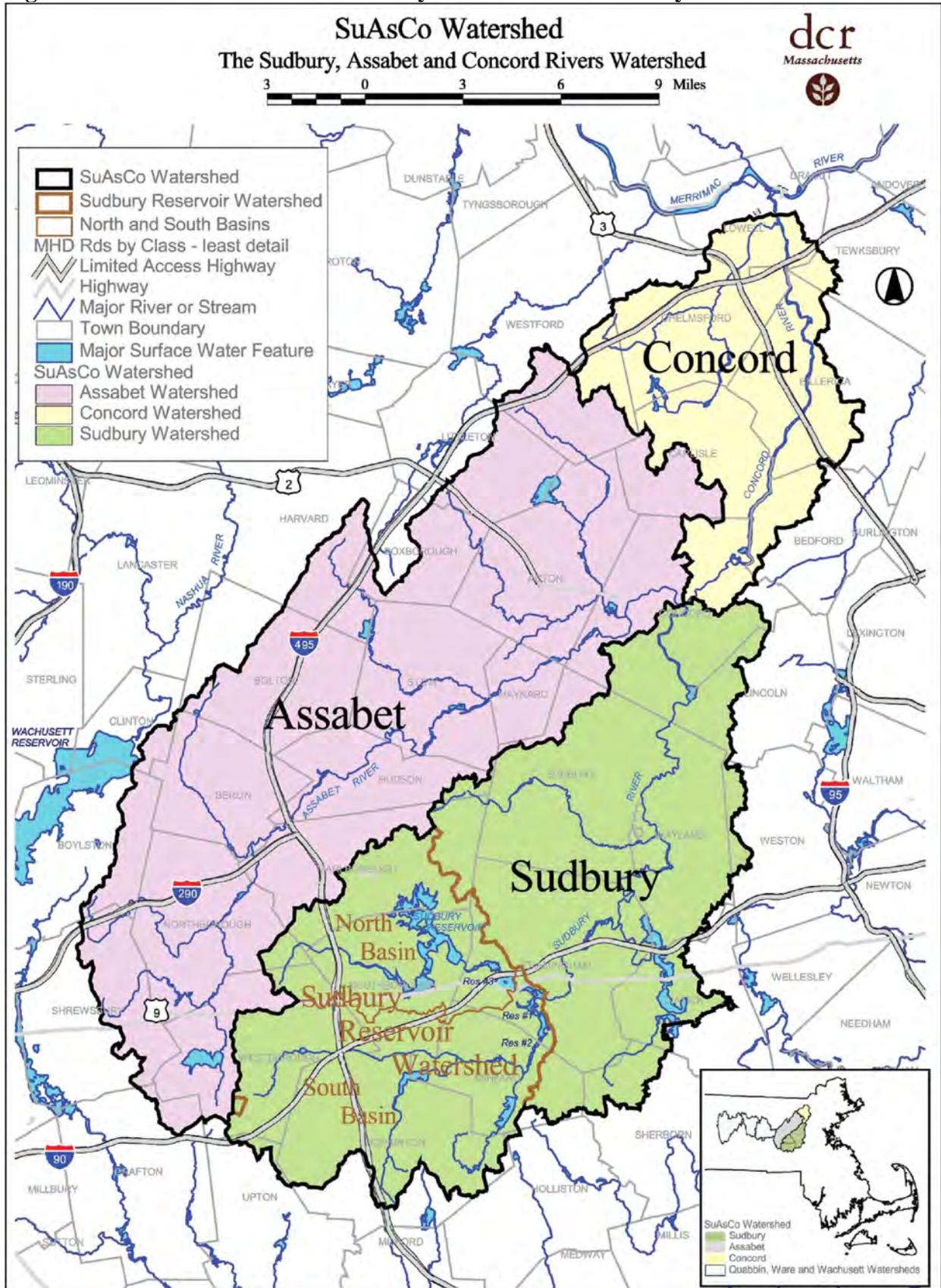
The Sudbury Watershed system had continually been hampered by limited yield, urbanization, and unsatisfactory water quality. The creation of the Wachusett and Quabbin Reservoirs over the first half of the 20th Century meant that increasingly substandard source waters from many of the reservoirs in the Sudbury System could be discontinued. Lake Cochituate, Whitehall, Hopkinton, and Ashland Reservoirs were transferred in 1947 to one of DCR's predecessor agencies for use as State Parks. Although the Sudbury South Basin had not been used for water supply since 1930, the Stearns and Brackett Reservoirs were kept as potential emergency water supplies.

The entire Sudbury System was officially removed from active use and classified as an emergency water supply in 1976. Subsequent water forecasting needs combined with the impacts from the Nyanza Superfund site in Ashland, concluded that neither Stearns or Brackett Reservoirs are suitable supplies for the DCR/MWRA water supply system (for more information, go to the EPA website www.epa.gov/region1/superfund/sites/nyanza). DCR and its predecessor have been attempting to transfer control of these remaining South Basin lands for twenty years. This approach was validated in the fall of 2007 with a vote by the MWRA Board of Directors declaring the South Basin lands surplus to their needs.

In December 2008, DCR Commissioner Richard K. Sullivan transferred control of 800 acres of land in the Cedar Swamp area of Westborough and Hopkinton, and along the Sudbury River in Hopkinton and Southborough to DCR's Division of State Parks and Recreation. DCR-Watershed continues its efforts to find a suitable entity to take control of the lands surrounding Stearns and Brackett Reservoirs. Due to limited access points and staff resources, DCR will continue its past policies of not allowing public access around these water bodies until there is a new manager of this property.

The Sudbury and Foss Reservoirs remain the only emergency drinking water source supply for more than two million residents of Eastern Massachusetts. This public access plan focuses solely on lands within the North Basin.

Figure 2: SuAsCo Basin and the Sudbury Reservoir Watershed System Sub-basins



B. Infrastructure

The North Basin contains the Sudbury Reservoir and Foss Reservoir (Framingham No. 3); it includes portions of the towns of Framingham, Northborough, Southborough, and Westborough, and the city of Marlborough (Figure 3). Four aqueducts, the Wachusett, Hultman, and Weston Aqueducts, and the MetroWest Tunnel are also contained within the North Basin. The Wachusett Aqueduct delivers water to the Sudbury Reservoir directly from the Wachusett Reservoir. Water from the Wachusett Aqueduct flows directly into the Sudbury Reservoir through the Wachusett Open Channel (the Wachusett Open Channel, from the terminal chamber to Deerfoot Road, is under the jurisdiction of the MWRA).

Water from Sudbury's North Basin can be used for a DEP declared emergency if the water is treated to meet public health requirements, by either boiling or treating with chlorine and/or other approved water treatment techniques. Prior to 2010, the Sudbury System was last used as an emergency supply in 1981 during a temporary shutdown of City Tunnel for repair work; at that time the water received primary disinfection with chlorine gas in Framingham and then secondary disinfection with chlorine gas and anhydrous ammonia.

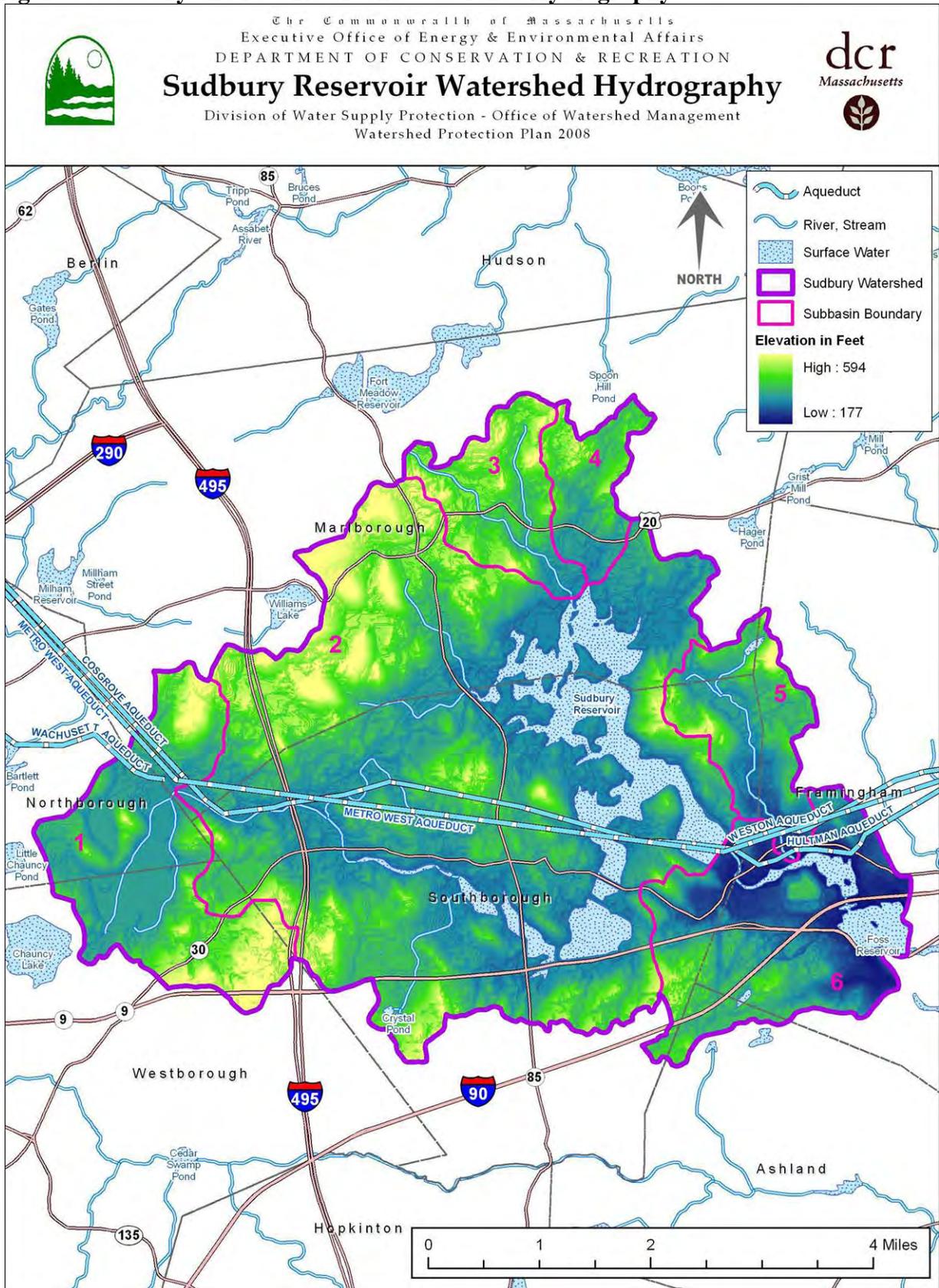
The catastrophic failure of the connection between the MetroWest Tunnel and the City Tunnel distribution pipe in Weston, MA on May 1, 2010 required MWRA to activate the Chestnut Hill Emergency Pumping Station, pumping water out of the Chestnut Hill Reservoir. The Chestnut Hill Reservoir was replenished with Sudbury Reservoir water transmitted through the Sudbury Aqueduct. A boil order was required and the water was also treated with chlorine. This reserve water supply, however, met primary (health based) and most secondary (aesthetic) drinking water parameters for Volatile Organic Compounds, Synthetic Organic Compounds, metals, and *E. coli* when tested at the pumping station intake by MWRA. The successful implementation of the emergency reserve supplies demonstrated the importance of this resource to the entire water supply system.

Table 1: Sudbury and Foss Reservoir Information

Attribute	Sudbury Reservoir	Foss Reservoir (Framingham #3)
Year Built	1896	1878
Volume Capacity	7.254 billion gallons	1.074 billion gallons
Surface Area	1,292 acres	250 acres
Watershed Area	22.4 mi ²	5.3 mi ²
Length of Dam	2000'	1,640'
Maximum Depth	65'	24'

Information from DCR/DWSP records and MassGIS

Figure 3: Sudbury and Foss Reservoirs Watershed Hydrography



Headwaters for the Sudbury's North Basin lie in Crane's Swamp, which is located in Northborough and Westborough. The Wachusett Aqueduct terminates at Shaft C, located in Crane's Swamp, and flows eastward through the Wachusett Open Channel which is the main tributary of the Sudbury Reservoir. Water from the reservoir is released at the Sudbury Dam and flows into the Stony Brook open channel. The Stony Brook Channel fills Foss Reservoir and then drains into Stearns Reservoir, where it is released into the Sudbury River and flows northward. MWRA's John J. Carroll Water Treatment Plant is sited at Walnut Hill in Marlborough. This plant utilizes ozone as the primary disinfectant for the drinking water transmitted from Wachusett Reservoir before it is distributed throughout metropolitan Boston via the Hultman aqueduct and the recently built MetroWest tunnel.

C. *Natural Characteristics*

1. Topography

The topography of DCR-Watershed land in the Sudbury watersheds varies from level to moderately sloped (Figure 3). Steep slopes are few and limited in extent. Elevation ranges from 259 feet (elevation of full reservoir) to 464 feet at Pine Hill. The watershed contains numerous drumlins; Walnut Hill is a prime example. Upland slopes are generally covered with glacial till material while lowlands are typically filled with the stratified silt, sand and gravel that constitute glacial outwash. Extensive forested wetlands exist at the north end of the reservoir and in the watershed headwaters at Crane Swamp.

2. Geology

The principal aquifers in the Sudbury Reservoir watershed are composed of stratified sand and gravel, up to 140 ft thick, deposited in stream channels at the end of the glacial period. Many broad lowlands in the SuAsCo basin mark the sites of glacial lakes, such as Lake Sudbury, which extended from South Framingham to Weston and from Concord to Wellesley, and Lake Assabet, which was located mainly in Westborough, Southborough, and Northborough.

The SuAsCo basin is underlain by a variety of crystalline rocks. Wells drilled in bedrock for domestic water supplies are commonly 100 to 300 ft deep and yield 2 to 10 gal/min, although yields up to 225 gal/min have been reported. Fine-grained lake deposits generally yield less than 100 gal/min to wells, but, if interspersed with coarser deposits, can yield 100 to 300 gal/min.

3. Vegetation

The forest on DCR property in the Sudbury watershed originates primarily from plantations established from 1907 to 1947. The majority of the approximately 1.75 million seedlings planted during this period were planted from 1913 to 1921. The balance of the Sudbury forest is the result of farm abandonment following the takings of the land prior to reservoir construction. The majority of the managed Sudbury forest is therefore 75+ years old.

The simplest Sudbury stands are even-aged conifer plantations of a single species. Complex stands are multi-aged, with a stratified mixture of both shade-tolerant and shade-intolerant species. Stand boundaries which were created and maintained by past land-use practices will fade with the passage of time, and stand definition will become less important. However, boundaries between forest types will remain evident where there are significant differences in site characteristics, and these type changes will dictate some differences in management (for instance opening sizes and choices of species where underplanting is required).

4. Hydrology

The Sudbury Reservoir watershed system is part of the Sudbury-Assabet-Concord (SuAsCo) Watershed (Figure 2). The North Sudbury Basin covers 17,806 acres, including the reservoirs. The major hydrologic inputs to the Sudbury and Foss reservoirs are the natural watershed drainage and the flow from the Wachusett Aqueduct and Open Channel (Figure 3). The minimum regulatory release from the reservoirs to the Sudbury River is 1.5 mgd (Ch. 177, Acts of 1872). There are six major subbasins in the North Sudbury Watershed.

D. Land Use

The Sudbury North Basin is situated in a well developed suburban/urban area. The major growth in this region, particularly in Marlborough and Framingham, has already occurred. The bisection of Foss Reservoir by the Massachusetts Turnpike and the construction of the Framingham Technology Park at its edge established land uses that have a significant impact on a drinking water supply. Precipitation run-off from over a quarter of the City of Marlborough drains into Sudbury Reservoir. The Town of Southborough, which has maintained a rural character much longer than many of its neighbors, faces significant growth pressure as it is well situated near the intersection of Rt. 495, Rt. 9, and the Massachusetts Turnpike (Table 2 and Figure 4).

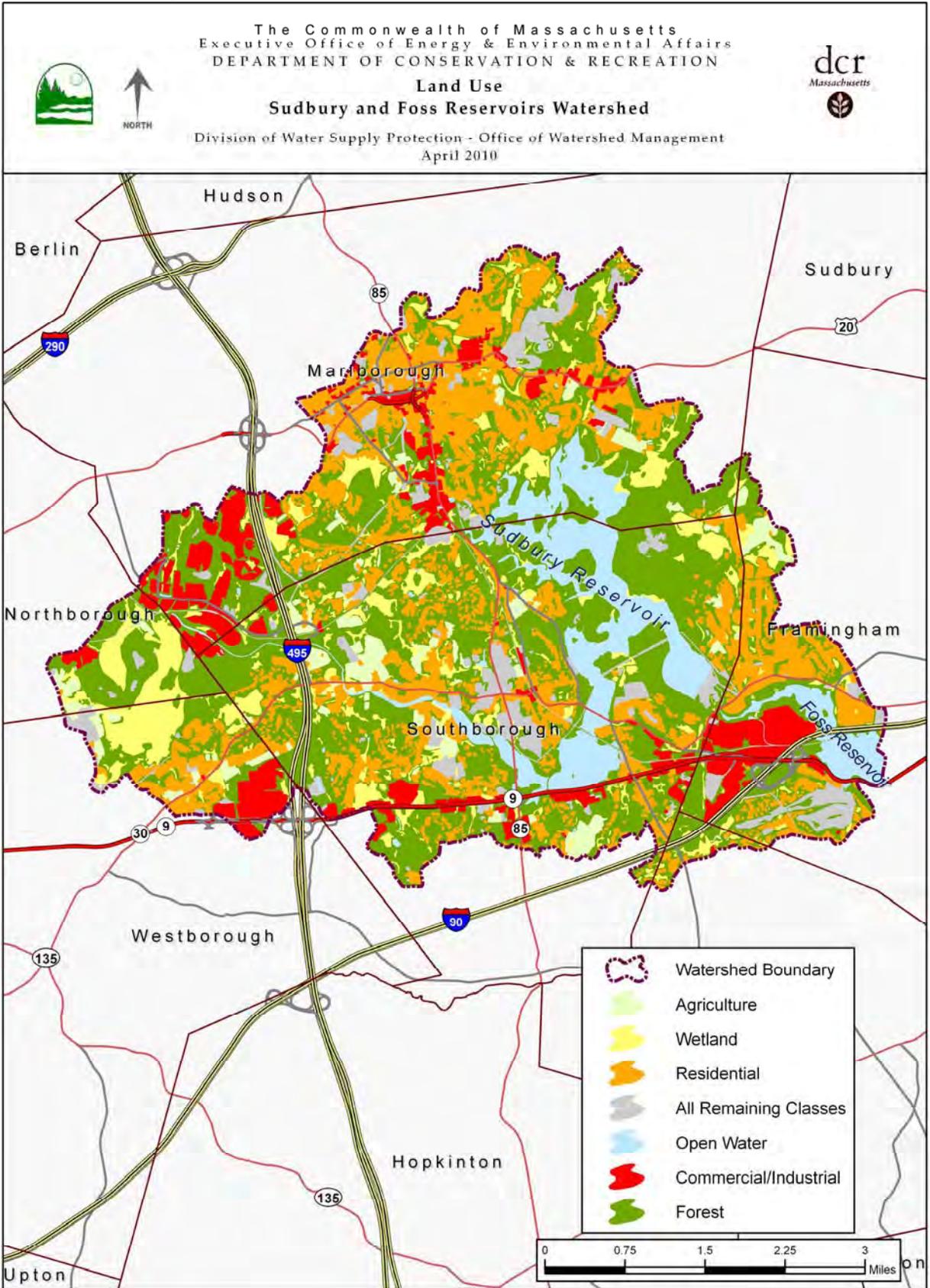
Table 2: Sudbury and Foss Reservoirs Watershed Land Cover and Land Use

Forest		Wetland		Agriculture		Residential		Commercial /Industrial		Open Water*		Other	
Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
7,029	43	1,574	10	630	4	4,111	25	1,499	9	97	1	1,409	9

Area in acres. Information derived from MassGIS 2005 data.

*Open Water excludes Sudbury and Foss Reservoirs. Sudbury and Foss Reservoirs encompass 1,432 acres by MassGIS calculations, representing 12.4% of the total watershed area of 17,782 acres.

Figure 4: Sudbury and Foss Reservoirs Watershed Land Use



E. Protected Open Space

1. DCR-Watershed Holdings

DCR-Watershed lands play a significant role of preserving Open Space in the landscape of the Sudbury and Foss Reservoirs watershed (Table 3 and Figure 5). Excluding the reservoirs, a quarter of the land area is in some form of permanent protection. DCR-Watershed's 2,381 acres encompasses approximately 15% of the watershed and represents close to 60% of all protected lands.

Other managers of protected land include: DCR-State Parks (Callahan State Park); the MA Department of Fish and Game (Westborough Wildlife Management Area); the towns of Framingham and Southborough, and the city of Marlborough; the non-profit organizations Sudbury Valley Trustees and Southborough Open Land Foundation; and a few private land owners.

Table 3: Sudbury and Foss Reservoirs Watershed Open Space Ownership

Total Watershed Area*	DCR Water Supply Protection		Other State Owned Lands		Municipal		Sudbury Valley Trustees		Other Protected Open Land		Total Protected	
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
16,350	2,386	14.6	557	3.4	443	2.7	207	1.3	500	3.1	4,093	25.0

Area in acres. Information derived from MassGIS data.

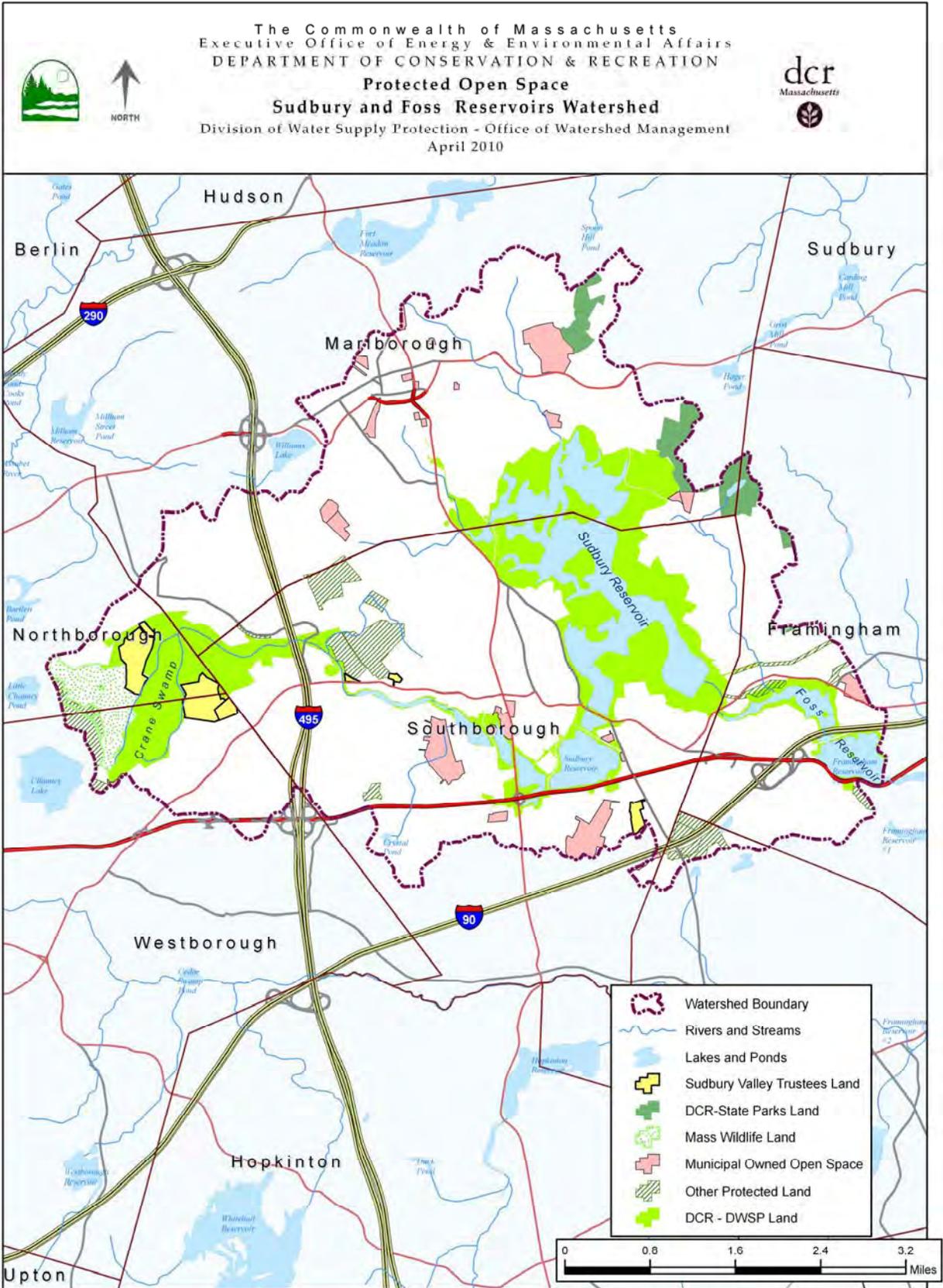
*Not including Sudbury and Foss Reservoirs. Total Watershed Area including reservoirs is 17,782 acres. Information derived from DCR and MassGIS data.

2. Payments in Lieu of Taxes (PILOT)

Massachusetts General Laws c. 59, §5G mandates that DCR's Division of Water Supply Protection make Payments Lieu of Taxes (PILOT) on the Commonwealth property managed by the Office of Watershed Management. The current law was ratified in 1984 for the Quabbin Reservoir and Ware River Watersheds and was amended in 1987 to include communities in the Wachusett and Sudbury Reservoir Watersheds.

The base information used for determining DCR PILOT, as with all other State Owned Land PILOT, is the valuation performed every four years by the Department of Revenue (DOR); the next revaluation is scheduled for 2009. It is strictly DOR's responsibility to set the value for this land following their guidelines on segmenting lands into prime lots (the requisite frontage and area needed to build a single family home in each community), rear acreage and unbuildable acreage, along with discount adjustments for total number of prime lots and total acreage.

Figure 5: Sudbury and Foss Reservoirs Watershed Protected Open Space



There are, however, several differences between the DCR PILOT and other State Owned Land reimbursements that are made by the Commonwealth under MGL c. 58, §§13-17:

1. MWRA ratepayers pay the bill.

Funds for the DCR PILOT payments come from Massachusetts Water Resources Authority (MWRA) rate payers who use the reservoir waters; the MWRA provides funding to the DCR to make PILOT payments to the watershed towns. Unlike other PILOT programs for state-owned lands, which are disbursed through the State’s Local Aid program (“Cherry Sheets”) and are subject to legislative appropriation (currently 62% of full value), the DCR program is paid in full directly to each community. The DCR payment does not appear on the Cherry Sheet.

2. DCR PILOT utilizes the local commercial tax rate.

The PILOT which is distributed through the “Cherry Sheet” is based on a statewide average of residential tax rates calculated by DOR. DCR PILOT is required to utilize each community’s commercial tax rate in calculating the PILOT obligation.

3. The payment can never be less than the previous year.

MGL c. 59, §5G states that Watershed Management PILOT can never be less than the previous year’s payment. This “hold harmless” clause provides the watershed communities the security of level funding even if a drop in valuation or tax rate combines to lower the calculated PILOT. This requirement provided watershed communities close to \$1 million in FY08.

Since 1985, more than \$80 million has been distributed in watershed protection PILOT payments. Fiscal Year 2010 PILOT for all 31 eligible communities in the DCR/MWRA water supply system was \$6.7 million. The four municipalities in the Foss and Reservoir watersheds received \$734,488 in Fiscal Year 2010 (Table 4). For a complete listing for each watershed community, go to www.mass.gov/dcr/watersupply/watershed/pilot.htm.

Table 4: Sudbury and Foss Reservoirs Watershed Payments in Lieu of Taxes

Community	Acres (DOR Valuation)	2009 DOR Valuation	FY07 PILOT	FY08 PILOT	FY09 PILOT	FY10 PILOT
Framingham	109.71	\$6,717,500	\$248,906	\$248,906	\$248,906	\$248,906
Marlborough	571.80	\$1,778,200	\$109,727	\$109,727	\$109,727	\$109,727
Northborough	363.64	\$6,521,500	\$82,109	\$88,007	\$91,188	\$91,188
Southborough	1,324.22	\$14,820,000	\$218,411	\$218,411	\$241,544	\$241,544
Westborough	217.36	\$2,539,700	\$31,828	\$31,828	\$31,828	\$43,124
Total		\$32,376,900	\$690,981	\$696,879	\$723,192	\$734,488

Information from DCR/DWSP and MA Department of Revenue data.

The average PILOT per acre varies considerably across the Watershed System. Factors involved in creating this scenario include:

1. Land values are significantly higher closer to Boston.
2. Municipalities that utilize split tax rates have their PILOT calculated using a higher commercial tax rate.
3. The number of higher value prime lots is dependent on the amount of frontage owned by DCR in a particular community.
4. DOR's land and segmentation discount schedule more prominently affects towns in which DCR owns large blocks of property.

The DCR PILOT program works in compliance with existing laws to provide consistent revenue to the communities that contain these critically important water supply lands.

III. Public Access Policies

A. Emergency Source Water Supply Issues

The Sudbury and Foss Reservoirs are the only emergency drinking water source supply for over two million residents of Eastern Massachusetts. There are three emergency conditions that would require the use of the Sudbury and Foss Reservoirs:

- Wachusett Reservoir is declared non-potable.
- There is an inability to convey water from the Wachusett Reservoir to the MWRA distribution system.
- A serious drought occurs.

Depending on the situation, the Sudbury and Foss Reservoirs would be used either as a primary source of water supply, as a pass through of Wachusett Reservoir water, or as a supplemental source to the Quabbin and Wachusett Reservoirs. The *2008 Watershed Protection Plan Update Volume IID Sudbury and Foss Reservoirs Watershed* contains a more detailed explanation of these scenarios.

The Sudbury and Foss Reservoirs are therefore not critical to the daily operations and service provided by DCR and MWRA. However, once an emergency occurs (such as the May 2010 pipe break in Weston), the water quality of these water bodies will impact the ability of their use as a reserve supply. Therefore, DCR views the protection of this resource as an important objective in its overall watershed management strategy. The *2008 Watershed Protection Plan Update* identified the 2,000 acres of DCR property as “a crucial buffer to water quality degradation in the reservoirs.”

DCR staff researched current trends in recreation and public water supplies in the development of the *Public Access Management Plan Update 2010 - Ware River Watershed*. The consensus amongst professionals in the drinking water field is that controlling and limiting human access is a major element in successful pollution prevention and source water protection programs. The American Water Works Association re-affirmed its policy statement on Recreational Use of Domestic Water Supply Reservoirs in 2009, declaring that protection of public health and drinking water quality should be the highest priority in operational decisions for reservoirs used jointly for water supply and recreation (Appendix).

DCR has limited resources available for ensuring public safety and protecting the Commonwealth’s property in the Sudbury and Foss Reservoirs watershed. Therefore, the agency must be very cautious in its approach towards restricting or prohibiting activities that may be incompatible with drinking water supply protection.

B. Recreational Activities

This section reviews recreation activities that have been identified in past plans as well as new pursuits that may impact the Sudbury and Foss reservoirs and the controls identified by DCR to minimize their water quality impacts. Many of these activities are regulated by DCR Watershed Protection statutes found at 350 CMR 11.09(2).

1. Water Contact Activities

Direct water contact activities, such as swimming and wading, pose an established threat to the water supply and to public safety. Primary contact recreation, such as swimming, has been identified as direct cause of water contamination and waterborne disease outbreaks. Bathers are thus a source of water contamination. These activities are prohibited by regulation. In addition, limited DCR land ownership, resource limitations, and proper public safety considerations make water contact activities inappropriate for these areas. Illegal swimming occurs chronically at certain spots around the two reservoirs, in particular the train trestle crossing the Foss Reservoir.

2. Boating (Motorized and Non-motorized)

All boating activities, both motorized and non-motorized, are prohibited by current regulations, except in areas specifically designated by the Commissioner at Quabbin Reservoir and in the Ware River watershed. Although boating does not require water contact, direct water contact nevertheless frequently occurs with these activities. Boating poses less of a threat to the water supply than swimming, but is still considered an unnecessary threat to a water supply. Boating violations currently occur from the launching of small craft at nearby roadways or adjacent private lands.

3. Fishing

Shoreline fishing is currently allowed along most of the Sudbury Reservoir shoreline, with a fishing season that runs from the first Saturday in April until November 30th each year. Shoreline fishing, without water contact, in certain areas, and for a limited period of time, does not pose a significant threat to the water supply or other natural resources.

Fishing is not allowed on Foss Reservoir due to the lack of reasonable access to its shore. DCR will consider opportunities to improve access and allow shoreline fishing if it will not create any trespassing conflicts with abutters and provide safe passage for the public as well as emergency responders.

4. Off-Road Driving

This recreational activity has been prohibited by regulation on all DCR-Watershed lands in the watershed system since 1989. This prohibition is based on significant documentation of the erosion impacts associated with ORV and ATV use, and observations of these effects on non-DCR-Watershed lands in the Ware River watershed. Given the limited DCR ownership in the Sudbury watersheds, control of potentially damaging uses on that land is critical.

5. Horseback Riding

Horseback riding is prohibited by regulation on all DCR watershed lands, except in designated areas within the Ware River watershed. Horseback riding is extremely limited due to the threat of fecal coliform contamination and the potential of other pathogens associated with domestic animal manures, as well as the increased potential for erosion of access roads.

The relatively small amount of DCR/DWSP property in the Sudbury System does not allow for trails to be located in an appropriate manner to adequately protect water quality. The additional road maintenance required to mitigate erosion impacts from horseback riding would further compromise the limited resources available to the Division for watershed protection.

6. Dogs and Other Pets

Bringing dogs or other animals onto DCR-Watershed lands around the Sudbury and Foss Reservoirs is prohibited by regulation. Dogs and other domestic animals can carry *Giardia* and *Cryptosporidium*; these parasites can spread to wildlife populations and ultimately into the water supply. In addition to parasites, dog waste contains millions of bacteria which, when left on the ground, can be washed into these surface waters, negatively impacting water quality. Dog waste can also cause an over abundance of algae and aquatic plants that can deplete the oxygen supply for fish.

7. Camping

Camping is prohibited by regulation. Camping tends to generate larger amounts of trash than hiking and walking. In addition, camping creates fire hazards and human sanitation problems. There are serious water quality concerns associated with deposition of human fecal matter close to tributaries and reservoirs. Given the lack of sanitary facilities and the significant needs of resource allocation for administration, maintenance, and enforcement, the DCR considers camping inappropriate and it will continue to remain an unauthorized activity in the Sudbury Reservoir watershed.

8. Hunting and Trapping

DCR regulations prohibit hunting and trapping except at times and in areas designated by DCR. Hunting and trapping are not currently allowed on DCR lands in the Sudbury Reservoir watershed. Historically there has been some illegal poaching in several areas of the watershed, such as Sudbury Reservoir lands and Crane Swamp. DCR Watershed Rangers have worked with State and Environmental police to halt this illegal activity.

9. Hiking, Nature Study, Bird Watching, Snowshoeing

Hiking, walking, nature study, bird watching, and snowshoeing are currently allowed in designated areas surrounding Crane's Swamp and the Sudbury Reservoir. Hiking (without dogs) has relatively minor impact to water quality. Walking on the surface of the Reservoirs when frozen is strictly forbidden.

10. Bicycle Riding

Regulations restrict bicycle riding to designated areas of DCR-Watershed property. The intensive use of trails for biking, if not properly constructed or maintained on a regular basis, can cause severe erosion. Heavy bicycle usage can also be incompatible with walking and nature observation. Additional policing is needed to monitor both permitted bicycling and illegal off-trail riding, and to prevent erosion. Due to limited resources for management of public access, recreational use, and user conflicts, DCR does not allow bicycle use on DCR-Watershed lands in the Sudbury System.

11. Cross-Country Skiing

Limited skiing presently occurs on the Sudbury Reservoir watershed. This activity is currently allowed along the existing DCR fire road located between Parmenter Road and the intersection of Nichols and Clemons Streets in Marlborough. Skiing is allowed in all areas that are open for hiking. Skiing is prohibited over the reservoir's frozen surface.

12. Picnicking

DCR regulations do not prohibit picnicking on Sudbury Reservoir watershed lands. Since picnicking is an ambiguous term, it should be noted that DCR's regulations prohibit the use of fire, any cooking activity, and alcoholic beverages on all watershed lands under the care and control of the DCR. All trash from picnic activity is the sole responsibility of the individual(s) involved and cannot be left on DCR property.

13. Geocaching

Geocaching (also known as Letterboxing) is a high-tech treasure hunting game played by people of all ages equipped with Global Positioning System (GPS) devices that has become popular within DCR-Watershed lands over the past decade. The basic idea is to locate containers with small, non-valuable artifacts hidden outdoors, called geocaches. There are several websites that coordinate information on locations; one of the foremost of these, www.geocaching.com, has close to 1 million geocache locations.

DCR-Watershed staff developed this policy in accordance with drafts initiated across the agency while updating the Ware River Public Access Plan. Any individual or organization wishing conduct geocaching to hide or find geocaches located within public spaces on DCR-Watershed lands is required to request permission from DCR Interpretive Services (DCR-IS) using a self-verification form. If approved, the applicant must then register the cache with [geocaching.com](http://www.geocaching.com) before placing any geocache on DCR lands. Existing geocaches may be reviewed by DCR staff or a volunteer group, and if a geocache falls outside the placement guidelines, it will be removed and the owner notified through www.geocaching.com.

The following guidelines must be followed before locating a geocache on DCR-Watershed property:

- The geocache must not be located in dams or dikes.
- The geocache must not be located in a restricted or otherwise protected archaeological, historical, cultural (including rock walls), or natural area.
- No significant damage or disturbance to the ground or flora will result from placement of or visits to this geocache.
- The geocache must not be located in an area that might cause potential danger to visitors (e.g., climbing on cliffs/bluffs or in trees, underwater, in caves or dens, or along heavily traveled roadways).
- The geocache will not create confusing spur trails off the established network of trails.
- The geocache will not be located in any restricted access areas in the Sudbury and Foss Reservoir Watershed.
- Geocaches must be transparent containers.

C. Public Access Issues

1. Trespassing

There are a range of transient trespassing issues, such as ATV and snowmobile use, boating, swimming, access to prohibited areas, and dumping. These concerns are not unique to the Sudbury watershed, as they are problematic to any land management agency. The following are DWSP strategies for controlling trespassing:

- Patrol regularly, made possible by the Watershed Ranger staffing increase in the Wachusett/Sudbury Section.
- Communicate and coordinate with local police, State Police, and the Environmental Police.
- Enforce Watershed Protection regulations found at 350 CMR 11.09(2).
- Maintain gates and barways.
- Update boundary signs.

2. Encroachments

As described in Section 3.2.13, there are also permanent encroachments onto DWSP property. These encroachments vary from mowing onto DCR property to establishing camps to erecting permanent structures. DWSP strategies for controlling encroachments include:

- Complete inventory of all DWSP lands in the Sudbury System, identifying the types and severity of encroachments.
- Work with the property owners to eliminate these encroachments.
- Improve boundary marking of DWSP property.

DCR has initiated an inventory of all DWSP lands in the Sudbury System, identifying the types and severity of encroachments, and then working with the property owners to eliminate these encroachments. These efforts will also result in improved boundary marking of DWSP property.

3. Foss Reservoir Access

DCR-Watershed Rangers have registered an increase in requests for fishing access to the Foss Reservoir. Currently there are no adequate parking and/or entry points for the public to reach this resource. DCR will explore any potential partnerships with public or private entities that may provide the opportunities to allow reasonable access to the reservoir that does not cause trespassing on private property and provides adequate public safety features.

4. Westborough State Hospital

The MA Department of Mental Health is planning on closing the Westborough State Hospital and moving its functions to a new facility in Worcester. The future of the property at Westborough State Hospital, which abuts DCR-Watershed Property in the Crane Swamp area, has yet to be determined. The legislature is currently considering the creation of a special commission to explore the re-use of the land. DCR-Watershed will maintain contacts with the legislature and community groups as the future of this property is determined.

D. 2010 Access Policies

DCR-Watershed has determined that the 2010 Access Policies for the Sudbury and Foss Reservoirs watershed will continue policies set forth in 2002. One minor change is that the activity of geocaching has been added to the list of identified recreation activities. The most significant change that may occur is the opening of Foss Reservoir to hiking and fishing if the opportunity arises to partner with other interested parties to provide safe and adequate access.

A key component to these policies is the designation of resource management districts and corresponding public access rules (Table 5 and Figure 7). These designations help DCR-Watershed staff implement the rules and regulations that protect this emergency water supply.

This public access plan and its policies focus solely on DCR lands within the Sudbury North Basin. DCR-Watershed continues its efforts to find a suitable entity to take control of the lands surrounding Stearns and Brackett Reservoirs in the Sudbury South Basin. Due to limited access points and staff resources, DCR will continue its past policies of not allowing public access around these water bodies until there is a new manager of this property.

Table 5: DCR Public Access Policy Summary for the Sudbury and Foss Reservoirs Watershed

ACTIVITY	Wachusett Open Channel/Crane's Swamp (Area A)	Sudbury Reservoir (Area B)	Foss Reservoir (No. 3)/Stony Brook (Area C)
VEHICLE ACCESS			
Off-Road Driving (ORVs, ATVs)	⊘	⊘	⊘
Snowmobiling	⊘	⊘	⊘
Bicycling	⊘	⊘	⊘
FOOT ACCESS			
Hiking	✓	✓	⊘*
Dog Walking	⊘	⊘	⊘
Cross-Country Skiing	✓	✓	⊘
Shoreline Fishing	✓	✓	⊘*
Horseback Riding	⊘	⊘	⊘
Hunting	⊘	⊘	⊘
WATER ACCESS			
Boating - non – motorized	⊘	⊘	⊘
Boating – motorized (including “jet-skis”)	⊘	⊘	⊘
Swimming	⊘	⊘	⊘
Ice Skating/Ice Fishing	⊘	⊘	⊘
OTHER ACTIVITIES			
Camping	⊘	⊘	⊘
Picnicking	✓	✓	⊘*
Fires & Cooking	⊘	⊘	⊘
Collecting/Metal Detecting	⊘	⊘	⊘
Geocaching	✓	✓	⊘*

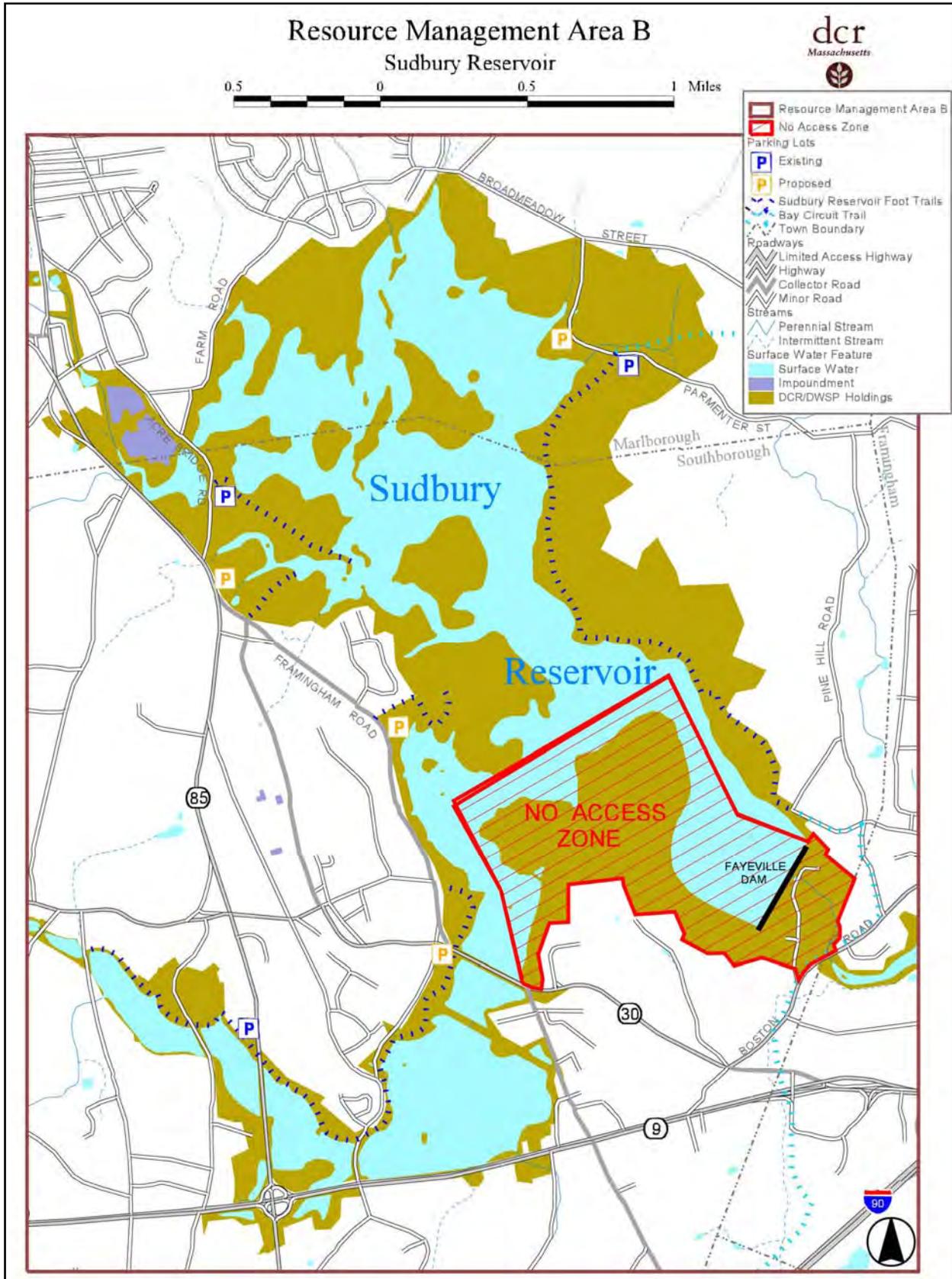
✓ – Public access is allowed in designated areas only

⊘ – Activity prohibited

* – Activity prohibited, but may be allowed in future if suitable access is identified.

Public access is allowed in designated areas only. Any activity which injures or defaces the property of the Commonwealth is strictly prohibited. All alcoholic beverages are prohibited. Night access is prohibited on DCR land in the Sudbury Reservoir watershed. See 350 CMR 11.09(2) for complete list of regulations. For additional information, contact the Wachusett/Sudbury Watershed Ranger Station at (978) 365-3800 or go to www.state.ma.us/dcr/watersupply/watershed/pacc.htm. In an emergency, contact the Watershed Rangers or the Massachusetts State Police at (508) 829-8410.

Figure 7: Public Access at the Sudbury Reservoir



IV. Implementation

The 2002 Sudbury Public Access Plan identified nine programmatic areas for implementation initiatives. These initiatives were integrated, as feasible, into each annual Work Plan developed by DCR-Watershed for approval by the Water Supply Protection Trust. The 2010 Public Access Plan utilizes the same programs to implement the public access issues discovered through this planning process.

A. 2002 Implementation Review

The 2002 Public Access Plan called for a number of initiatives related to public access and controls. The most notable change was the expansion of the zone around the Sudbury Reservoir where public access is allowed. This change was implemented immediately, although it took some time to revise signage. Significant effort was made to establish partnerships that would allow new trails on DCR-Watershed land. Most notably, DCR entered an agreement with the Town of Southborough that developed a walking trail near the Sudbury Reservoir. Many other initiatives that were identified in 2002 were completed over the past seven years. In several instances, however, the plan was overly aggressive and resources for the proposed work did not materialize. Table 6 contains a point by point analysis of the 2002 Plan implementation.

The most important development over this period of time was the deployment of two additional Watershed Rangers from the Wachusett Operational Section with a focus on the Sudbury watershed. The rangers' presence has greatly increased the agency's ability to enforce its regulations, limiting trespassing, encroachments, and situations that endanger the public.

The two most noteworthy results of the Watershed Rangers' work are the removal of illegal boaters from Sudbury Reservoir and increased efforts to eliminate swimming at Foss Reservoir. In a joint effort with the Environmental Police, illegal boaters have been summoned to court and their boats and equipment confiscated. State and local Police have also been involved in the successful efforts to halt illicit swimming at Foss Reservoir.

Table 6: 2002 Access Plan Implementation Objectives and Achievements

Issue	Implementation Objectives – 2002 Access Plan	Achievements 2002-2009
Structural and Access Controls	<ol style="list-style-type: none"> 1. Replace gates and other barriers where vehicular access can be gained illegally. 2. Install a new lock system on gates. 3. Institute a numbering system for the gates around the Reservoir. 4. Improve parking and entry points: <ol style="list-style-type: none"> a. Parmenter Road at Bay Circuit Trail entrance b. Acre Bridge Road at Recreational Field c. Parmenter Road at cove near northern tip of Reservoir d. Framingham Road at entrance to former firing range e. Route 30 at White Bagley Road f. Route 30 near entrance to Dam 	<ol style="list-style-type: none"> 1. All cable gates replaced; other access issues resolved. 2. Some locks replaced, but no new comprehensive lock system installed. 3. Not done. 4. Acre Bridge Road done by town. No funding for remaining parking lots.
Signs	<ol style="list-style-type: none"> 1. Install new signs with updated policies and universal symbols, as resources permit. 2. Install kiosks or bulletin boards at Acre Bridge Rd. recreation area and Bay Circuit Trail access at Parmenter Rd.. 3. Install additional kiosks at other parking areas, as resources permit. 	<ol style="list-style-type: none"> 1. Signs replaced. 2. No kiosks installed. 3. No resources available to install other kiosks.
Mapping	<ol style="list-style-type: none"> 1. Obtain or develop updated ownership information into GIS. 2. Develop Public Access Map. 	<ol style="list-style-type: none"> 1. Data obtained from MassGIS. 2. Created a Fishing Map with rules.
Enforcement	<ol style="list-style-type: none"> 1. Utilize Wachusett Reservoir Watershed Ranger Staff for patrols. 2. Develop Sudbury Reservoir Watershed Ranger Staff, as resources permit. 3. Coordinate with State Police, Environmental Police and local Police. 	<ol style="list-style-type: none"> 1. and 2. Added two Watershed Rangers who began regular patrols in the Sudbury watershed. 3. Coordination by new Rangers has lead to improved regulatory enforcement.
Encroachments	<ol style="list-style-type: none"> 1. Inventory all DWM lands in the Sudbury System for encroachments. 2. Identify the types and severity of encroachments. 3. Resolve encroachments with the property owners. 	<ol style="list-style-type: none"> 1. and 2. Foss survey complete; Sudbury initiated. 3. Need to complete survey before resolution.

Issue	Implementation Objectives – 2002 Access Plan	Achievements 2002-2009
Public Education/ Interpretive Services	<ol style="list-style-type: none"> 1. Provide indirect contact with public via: <ol style="list-style-type: none"> a. Signs b. Kiosks/Bulletin Boards c. Pamphlets d. Maps (see Mapping) e. Website 2. Provide direct contact with public via: <ol style="list-style-type: none"> a. Watershed Ranger Patrols b. Guided Hikes and Tours c. School Programs d. Public Events 	<ol style="list-style-type: none"> 1. New signs posted; utilized existing kiosks for posting information; updated website with public access maps and plans. 2. Ranger Patrols provide direct contact with the public.
Partnerships	<ol style="list-style-type: none"> 1. Foster partnerships with local entities to develop and maintain facilities on DCR land in keeping with DCR-Watershed policies and regulations. <ol style="list-style-type: none"> a. Town of Westborough – Charm Bracelet Trail b. Bay Circuit Alliance – Bay Circuit Trail c. Town of Southborough – Sudbury Reservoir Trail d. Stewardship programs 	<ol style="list-style-type: none"> 1. Sudbury Reservoir Trail completed. Discussions held on others but no final resolution.
Open Space Coordination	<ol style="list-style-type: none"> 1. Callahan State Park 2. Sudbury Valley Trustees 3. Watershed Communities 4. SCORP 	<ol style="list-style-type: none"> 1. Maintained communication with DCR State Parks. 2. Discussions held concerning trail resources. 3. Ongoing communication on encroachment issues.
Monitoring/ Program Evaluation	<ol style="list-style-type: none"> 1. Establish a standing Sudbury Reservoir Public Access Advisory Committee. 2. Develop methods for regular property assessment to identify impacts 3. Provide a yearly review of the plan and, if necessary, a public meeting to gather input on implementation of the plan. 	<ol style="list-style-type: none"> 1. No interest expressed by public involved in planning process. 2. Watershed Rangers provide regular evaluation of property conditions. 3. Annual review written; no meetings requested by the public.

B. 2010 Implementation Plan

DCR-Watershed staff reviewed each of the implementation programs to determine the needs for the next five to ten years. Table 7 identifies the proposed objectives for DCR-Watershed to support the policies of this Public Access Plan.

The *2008 Watershed Protection Plan Update for the Sudbury and Foss Reservoirs* identified the need for increased water quality monitoring in the watershed. DCR has begun expanded water quality monitoring in the Sudbury Reservoir as well as water sampling in some of the reservoir's tributaries. This data will provide DCR with background levels of several water quality parameters that will help identify any significant changes in water quality. Impacts to water quality can come from a number of potential sources, including public access.

The *Sudbury and Foss Reservoirs Watershed 2010 Public Access Plan Update* implementation focuses on the continuation of the same access policies as 2002. The implementation strategy is mindful of the extremely limited funding for activities beyond routine maintenance and patrols. However, the plan leaves open opportunities, when appropriate, to partner with other groups and organizations. This plan continues programs that provide passive education to visitors and enforces DCR regulations and policies through Ranger patrols and police coordination.

Table 7: 2010 Access Plan Needs Assessment and Implementation Objectives

Issue	Needs Assessment 2010	2010 Implementation Objectives
Structural and Access Controls	<ol style="list-style-type: none"> 1. Determine if there is a need for more parking lots around the watershed. If needed, look to partners or other funding sources. 2. Interest in providing hiking and fishing at Foss Reservoir. Requires improved access not currently available from DCR property. 	<ol style="list-style-type: none"> 1. Improve parking conditions as determined by need and available resources. Partner, when possible, with public and private entities to off-set costs. 2. Identify opportunities to improve access at Foss Reservoir.
Signs	<ul style="list-style-type: none"> ▪ Kiosks still needed at Acre Bridge and Parmenter Roads. ▪ Identify necessity and costs for other kiosks/informational signs at other locations. 	<ol style="list-style-type: none"> 1. Install information kiosks at Acre Bridge Rd. and Parmenter Rd. access points. 2. Install, as necessary and as resources permit, additional informational kiosks/signs at other locations around the Sudbury and Foss Reservoirs.
Mapping	<ul style="list-style-type: none"> ▪ Determine need for Public Access Map beyond current fishing map. 	<ol style="list-style-type: none"> 1. Continue to print and distribute Fishing Map with rules. 2. Assess need for additional public access information. Produce additional access information if needed.

Issue	Needs Assessment 2010	2010 Implementation Objectives
Enforcement	<ul style="list-style-type: none"> ▪ Continue successful Watershed Ranger patrols. ▪ Pursue ongoing coordination with Police to continue compliance improvements. ▪ Dog walking is a major issue at Foss Reservoir. 	<ol style="list-style-type: none"> 1. Continue Watershed Ranger patrols around the Sudbury and Foss Reservoir watershed. 2. Maintain communication and coordinate regulatory enforcement with Environmental, State, and local police. 3. Provide increased surveillance and public education concerning the law against dog walking on DCR-Watershed lands in the Sudbury and Foss Reservoir watersheds.
Encroachments	<ul style="list-style-type: none"> ▪ Complete Sudbury encroachment survey and initiate resolution strategies. 	<ol style="list-style-type: none"> 1. Complete encroachment survey around Sudbury Reservoir. 2. Develop and implement a resolution strategy for entire watershed.
Public Education/ Interpretive Services	<ul style="list-style-type: none"> ▪ Install kiosks. ▪ Disperse information on rules and regulations; determine need for pamphlets and improved mapping. ▪ Evaluate ability to provide other educational material through partners. 	<ol style="list-style-type: none"> 1. Install kiosks as described under “Signs.” 2. Produce and distribute public access maps and rules, as described under “Mapping.” 3. Continue Watershed Ranger patrols, as described under “Enforcement.” 4. Look at avenues for providing education through partnerships with other organizations.
Partnerships	<ul style="list-style-type: none"> ▪ Investigate opportunities and abilities to partner with other agencies and groups. 	<ol style="list-style-type: none"> 1. Investigate potential partnerships in both the private and public realm. 2. Coordinate, when necessary, with DCR Office of External Affairs.
Open Space Coordination	<ul style="list-style-type: none"> ▪ Assess ability to accomplish work with other parties. 	<ol style="list-style-type: none"> 1. Maintain communication with other owners of open space in the watershed. 2. Coordinate, when possible, on access improvements.
Monitoring/ Program Evaluation	<ul style="list-style-type: none"> ▪ Determine whether a formal committee is needed or if there are other forums needed to discuss areas of public concern. ▪ Monitor potential water quality impacts to the Sudbury Reservoir. 	<ol style="list-style-type: none"> 1. Maintain Watershed Ranger patrols for regular evaluation of property conditions. 2. Maintain communication with municipalities, public agencies, non-profit groups, and private interests; determine need for committee or regularly scheduled meetings. 3. Provide annual written review as part of the reporting to the Water Supply Trust. 4. Continue routine monthly tributary and reservoir water quality sampling.

References

- Department of Conservation and Recreation, Division of Water Supply Protection. *Land Management Plan for the Watersheds of the Sudbury Reservoirs: 2005-2014*. Boston, MA. 2005.
- Department of Conservation and Recreation, Division of Water Supply Protection. *2008 DCR Watershed System Watershed Protection Plan Update*. Boston, MA. 2008.
- Department of Conservation and Recreation, Division of Water Supply Protection. *Public Access Management Plan Update 2010 - Ware River Watershed*. Belchertown, MA. 2010.
- Department of Conservation and Recreation, Division of Water Supply Protection. *Wachusett and Sudbury Watersheds Emergency Spill Response/Prevention Plan*. West Boylston, MA. 2008.
- Lao, Young and Steven F. Rhode. *An Evaluation of Water Quality of MWRA Emergency Distribution Reservoirs from 2002 to 2005*. Winthrop, MA. 2006.
- Metropolitan District Commission, Division of Watershed Management. *Sudbury Reservoir Watershed System Public Access Plan Update*. Boston, MA. 2002.
- Metropolitan District Commission, Massachusetts Water Resources Authority, and Comprehensive Environmental, Inc. *Watershed Protection Plan Sudbury Reservoir and Framingham Reservoir #3*. Boston, MA. 1997.
- U.S. Environmental Protection Agency and Avatar Environmental. *Human Health Risk Assessment Synthesis, Nyanza Superfund Site, Operable Unit IV, Sudbury River Mercury Contamination (Draft)*. Boston, MA. 2006.
- Yeo, Jonathan L. *The Future Role of the Sudbury Reservoirs and Watershed in the MDC/MWRA Water Supply System: A Review of Alternatives*. MWRA, Boston, MA. 1992.

Appendix: AWWA Recreation Policy



The Authoritative Resource on Safe Water®

6666 West Quincy Avenue
Denver, CO 80235-3098
T 303.794.7711
F 303.794.7310
www.awwa.org

Statement of Policy on Public Water Supply Matters

Recreational Use of Domestic Water Supply Reservoirs

The American Water Works Association (AWWA) supports the principle that water of the highest quality should be used as the source of supply for public water systems. Accordingly, the risks and potential mitigation requirements of any recreational activity on water supply reservoirs should be identified and publicly evaluated. In the evaluation, utility- and customer-determined acceptable levels of risk should be given the highest consideration. No recreation should be permitted on finished-water reservoirs under any circumstances.

Protection of public health and drinking water quality should be the highest priority in operational decisions for reservoirs used jointly for water supply and recreation. Decisions regarding recreational use of domestic water supply reservoirs should be consistent with the intent of the source water protection program developed and implemented by the utilities and other responsible parties.

Recreational uses of domestic water supply reservoirs and the land-based infrastructure necessary to support such uses can add sources of microbial, physical, and chemical contaminants to the drinking water produced from the reservoirs. Water utility decisions on permitting recreational uses of water supply reservoirs should consider the following issues: (1) the potential for water quality degradation, (2) the public health risk, (3) the acceptance of such health risk by the customers, (4) the current required level of treatment, and (5) additional treatment requirements, uncertainties, and costs that may be incurred. Recreational uses should be prohibited in those instances where a scientifically-based risk assessment, or, in the absence of a risk assessment, the best available scientific data demonstrates a probable or imminent degradation of water quality or hazard to public health that cannot be controlled or mitigated in a cost effective manner.

Continued . . .

Adopted by the Board of Directors June 13, 1971, reaffirmed Jan. 28, 1979, and Jan. 25, 1987, revised June 23, 1996, June 13, 2004, and January 25, 2009.



The Authoritative Resource on Safe Water™

6666 West Quincy Avenue
Denver, CO 80235-3098
T 303.794.7711
F 303.794.7310
www.awwa.org

When considering proposals for recreational use of domestic water supply reservoirs, the water utility should work with stakeholders to develop an integrated reservoir management plan, including appropriate water quality monitoring, to evaluate and, if necessary, mitigate water quality impacts, and to minimize increased risks. Body-contact recreation (e.g., swimming, water skiing, wind surfing) and use of two-cycle gasoline engines on boats should be discouraged or prohibited. In addition, boat inspection/washing stations and restrictive use of live bait should be considered to prevent the introduction of foreign and invasive species (such as zebra mussels or non-native algal species) that could potentially destabilize a reservoir's ecology and water quality. Where feasible, costs for monitoring, evaluations, and mitigation should be borne by those proposing or benefiting from the recreational activity, not by the utility or its customers.

If recreation already exists on a reservoir, the water utility should work or continue to work with stakeholders to develop an integrated reservoir management plan and associated implementation actions to mitigate water quality impacts and to minimize increased risks.

Recreational Use of Domestic Water Supply Reservoirs

Adopted by the Board of Directors June 13, 1971, reaffirmed Jan. 28, 1979, and Jan. 25, 1987, revised June 23, 1996, June 13, 2004, and January 25, 2009