

Ball Mountain Lake Master Plan

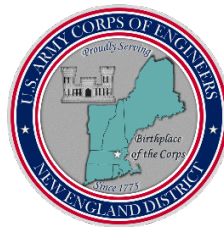
Connecticut River Basin
Jamaica, Windham County, Vermont
2026

DRAFT REPORT



US Army Corps
of Engineers®
New England District

The Ball Mountain Lake Master Plan was produced by the U.S. Army Corps of Engineers Southwestern Division Regional Planning and Environmental Center (RPEC) for the New England District (NAE).



EXECUTIVE SUMMARY

Ball Mountain Lake Master Plan
U.S. Army Corps of Engineers
Prepared by the Southwestern Division
Regional Planning and Environmental Center (RPEC)
2026

ES.1 PURPOSE

The Ball Mountain Lake Master Plan (hereafter Plan or Master Plan) is a complete revision of the 1977 *Ball Mountain Lake Master Plan* and its supplements. The revision is a framework built collaboratively to guide appropriate stewardship of U.S. Army Corps of Engineers (USACE) administered resources at Ball Mountain Lake over the next 25 years. The 1977 Master Plan has served well past its intended 25-year planning horizon and does not reflect the growing population around the lake and regional recreation needs.

Ball Mountain Lake was authorized in 1938, as modified by 1941 and 1944 Flood Control Acts, as a single purpose flood control project and is part of the USACE comprehensive flood control plan for the Connecticut River Basin. In addition to this primary mission, the USACE has an inherent mission for environmental stewardship of project lands while working closely with stakeholders and partners to provide regionally important outdoor recreation opportunities.

The 2026 Ball Mountain Lake Master Plan revision reflects the recalculated Master Plan acres throughout the document. The 2026 Master Plan acres may differ from the acres on record with the USACE New England District Real Estate Office or those documented within the Water Control Manual for the Ball Mountain Lake and Dam, which is maintained by the USACE New England District. Any water control management and real estate studies or transactions should be coordinated with the appropriate USACE offices.

The Master Plan and supporting documentation provide an inventory and analysis of goals, objectives, and recommendations for USACE lands and waters at Ball Mountain Lake, Vermont with input from the public, stakeholders, and subject matter experts. The Master Plan is primarily a land use and outdoor recreation strategic plan that does not address the specific authorized purposes of flood risk management. Although water management is addressed in the 1973 Connecticut River Basin Master Water Control Manual (MWCM), Appendix D (USACE, 1973), the Master Plan acknowledges that fluctuating water level for flood risk management can have a dramatic effect on outdoor recreation.

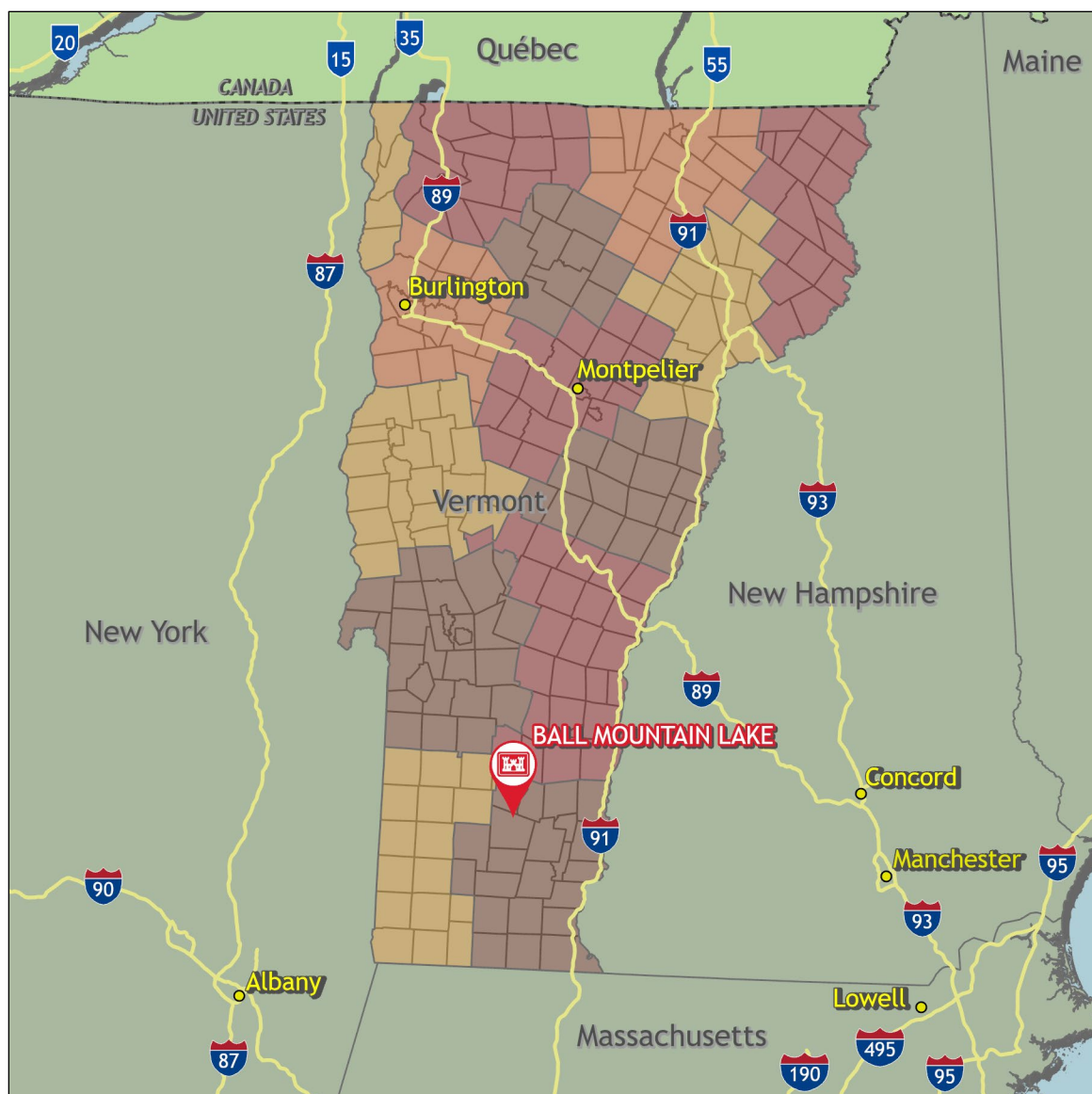


Figure ES.1 Vicinity Map of Ball Mountain Lake

Ball Mountain Lake has a water surface of 2,000 net acre feet at the conservation (normal) pool of 870.5 feet NGVD29 (USACE, 1973). All elevations in this document are NGVD29 unless noted otherwise. The mapping used for this Master Plan revision uses modern satellite imagery and GIS mapping, resulting in new acreage calculations. The 1977 Master Plan did not define land classifications on a map, but by text only. Proposed land classification changes were drafted in part by reviewing the text in the original Master Plan.

ES.2 PUBLIC INPUT

To ensure a balance between operational, environmental, and recreational outcomes, USACE obtained both public and agency input toward the Master Plan. A draft Environmental Assessment (EA) was completed in conjunction with the Master Plan to evaluate the impacts of alternatives and can be found in Appendix B.

On April 15, 2025, a public open house was held at the Jamaica Town Hall in Jamaica, Vermont to inform the public of the intent to revise the Master Plan. The public input period remained open for 30 days from April 15, 2025 to May 15, 2025. At the public information meeting a presentation was given that included the following topics:

- What is a Master Plan?
- What a Master Plan is Not
- Why Revise a Master Plan?
- Overview of the National Environmental Policy Act (NEPA) process
- Master Planning Process
- Instructions for submitting comments

USACE received 5 comments for Ball Mountain Lake. These comments and the USACE response can be found in Appendix E.

A public open house will be held for the Ball Mountain Lake Draft Master Plan revision. The purpose of this open house will be to provide attendees with information regarding the proposed Master Plan revision as well as to provide them with the opportunity to provide comments on the proposed Ball Mountain Lake Draft Master Plan. The open house will have the same topics as the initial public open house. The open house will begin a 30-day comment period where the public and stakeholders can provide comments on the Draft Master Plan. These comments will be reviewed and addressed as the USACE revises a final version of the Master Plan.

ES.3 RECOMMENDATIONS

The following land and water classification changes (detailed in Chapter 8) were a result of the inventory, analysis, synthesis of data, documents, and public and agency input. Since the 1977 Master Plan did not designate any land classifications in the maps, all of the proposed classifications in the 2026 Master Plan are new, and are required by regulation to identify actual and project use as shown in Table ES.1. A majority of the lands are designated under the Multiple Resource Management Lands (MRML) of Low Density Recreation (LDR) and Wildlife Management (WM). It also includes acres for Project Operations (PO) and High Density Recreation (HDR).

Table ES.1 2026 Proposed Land and Water Surface Classification at Ball Mountain Lake

Proposed Land Classifications (2026)	Acres
Project Operations (PO)	110
High Density Recreation (HDR)	100
Multiple Resource Management Lands (MRML)	
Low Density Recreation (MRML-LDR)	387
Wildlife Management (MRML-WM)	311
LAND TOTAL	908
Proposed Water Surface Classifications (2026)	Acres
Open Recreation	83
Restricted	16
WATER TOTAL	99
TOTAL FEE	1007

The acreages of the conservation pool and USACE land lying above the conservation pool were measured using satellite imagery and GIS technology for the 2026 Land and Water Surface Classifications. A more detailed summary of changes and rationale can be found in Chapter 8.

ES.4 PLAN ORGANIZATION

Chapter 1 of the Master Plan presents an overall introduction to Ball Mountain Lake. Chapter 2 consists of an inventory and analysis of Ball Mountain Lake and associated land resources. Chapters 3 and 4 lay out management goals, resource objectives, and land classifications. Chapter 5 is the resource management plan that identifies how project lands will be managed for each land use classification. This includes current and projected overall park facility needs, an analysis of existing and anticipated resource use, and anticipated influences on overall project operation and management. Chapter 6 details special topics that are unique to Ball Mountain Lake. Chapter 7 identifies the public involvement efforts and stakeholder input gathered for the development of the Master Plan, and Chapter 8 gives a summary of the land classification. Finally, the appendices include information and supporting documents for this Master Plan revision, including Land Classification and Park Plate Maps (Appendix A).

A draft Environmental Assessment was developed with the Master Plan, which analyzed alternative management scenarios for Ball Mountain Lake, in accordance with federal regulations including the National Environmental Policy Act of 1969, as amended (NEPA); and the Department of Defense NEPA Implementation Procedures. The draft EA is a separate document that informs this Master Plan and can be found in its entirety in Appendix B.

The draft EA evaluated two alternatives as follows: 1) No Action Alternative, which would continue the use of the 1977 Master Plan, and 2) Proposed Action

Alternative, the adoption and implementation of this Master Plan. The draft EA analyzed the potential impact these alternatives would have on the natural, cultural, and human environments. The Master Plan is conceptual and broad in nature, and any action proposed in the Plan that would result in significant disturbance to natural resources or result in significant public interest would require additional NEPA documentation at the time the action takes place.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
ES.1 PURPOSE	1
ES.2 PUBLIC INPUT	2
ES.3 RECOMMENDATIONS.....	3
ES.4 PLAN ORGANIZATION	4
TABLE OF CONTENTS.....	i
LIST OF FIGURES	iv
LIST OF PHOTOS	v
LIST OF TABLES	vi
CHAPTER 1 – INTRODUCTION	1-1
1.1 GENERAL OVERVIEW	1-1
1.2 PROJECT AUTHORIZATION.....	1-2
1.3 PROJECT PURPOSE	1-3
1.4 PURPOSE AND SCOPE OF MASTER PLAN.....	1-3
1.5 BRIEF WATERSHED AND PROJECT DESCRIPTION.....	1-5
1.6 PROJECT ACCESS	1-6
1.7 PRIOR DESIGN MEMORANDA AND PLANNING REPORTS.....	1-6
1.8 PERTINENT PROJECT INFORMATION.....	1-7
CHAPTER 2 – PROJECT SETTING AND FACTORS INFLUENCING MANAGEMENT AND DEVELOPMENT	2-1
2.1 HYDROLOGY.....	2-1
2.1.1 Surface Water	2-1
2.1.2 Ground Water	2-2
2.2 SEDIMENTATION AND SHORELINE EROSION	2-4
2.3 WATER QUALITY	2-4
2.4 AIR QUALITY	2-5
2.5 CLIMATE and GREENHOUSE GASES	2-5
2.5.1 Climate.....	2-5
2.5.2 Greenhouse Gases.....	2-6
2.6 TOPOGRAPHY, GEOLOGY, AND SOILS	2-7
2.6.1 Topography.....	2-7
2.6.2 Geology	2-7
2.6.3 Soils	2-7
2.6.4 Prime Farmland	2-10
2.7 NATURAL RESOURCE ANALYSIS	2-13
2.7.1 Fish and Wildlife Resources	2-13
2.7.2 Vegetative Resources.....	2-15
2.7.3 Threatened and Endangered Species	2-16
2.7.4 Invasive Species	2-18
2.7.5 Ecological Setting	2-19

2.7.6 Wetlands.....	2-21
2.8 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE.....	2-23
2.9 HEALTH AND SAFETY.....	2-24
2.10 AESTHETIC RESOURCES.....	2-25
2.11 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES...	2-25
2.11.1 Cultural Chronology	2-26
2.11.2 Long-Term Cultural Resource Objectives	2-27
2.12 DEMOGRAPHICS AND ECONOMIC RESOURCES	2-27
2.12.1 Area of Interest	2-27
2.12.2 Population.....	2-28
2.12.3 Education and Employment	2-31
2.12.4 Households, Income, and Poverty	2-36
2.13 RECREATION FACILITIES, ACTIVITIES, AND NEEDS.....	2-39
2.13.1 Visitation Profile	2-39
2.13.2 Recreation Areas and Facilities	2-39
2.13.3 Recreation Analysis	2-44
2.13.4 Recreation Carrying Capacity	2-46
2.14 REAL ESTATE	2-46
2.14.1 Outgrants.....	2-46
2.14.2 Guidelines for Property Adjacent to Public Land.....	2-47
2.14.3 Trespass and Encroachment.....	2-47
CHAPTER 3 – RESOURCE GOALS AND OBJECTIVES.....	3-1
3.1 INTRODUCTION	3-1
3.2 RESOURCE GOALS.....	3-1
3.3 RESOURCE OBJECTIVES.....	3-1
CHAPTER 4 – LAND ALLOCATION, LAND CLASSIFICATION, WATER SURFACE, AND PROJECT EASEMENT LANDS	4-1
4.1 LAND ALLOCATION	4-1
4.2 LAND CLASSIFICATION.....	4-1
4.2.1 General	4-1
4.2.2 Prior Land Classifications	4-1
4.2.3 Land Classifications	4-2
4.2.4 Water Surface Classifications	4-4
4.2.5 Project Easement Lands.....	4-5
CHAPTER 5 – RESOURCE PLAN.....	5-1
5.1 MANAGEMENT BY CLASSIFICATION.....	5-1
5.2 PROJECT OPERATIONS	5-1
5.3 HIGH DENSITY RECREATION.....	5-1
5.4 MITIGATION.....	5-3
5.5 ENVIRONMENTALLY SENSITIVE AREAS.....	5-3
5.6 MULTIPLE RESOURCE MANAGEMENT LANDS	5-4
5.6.1 Low Density Recreation	5-4
5.6.2 Wildlife Management (WM).....	5-5
5.6.3 Vegetative Management	5-6
5.6.4 Future/Inactive Recreation Areas.....	5-6

5.7 WATER SURFACE	5-6
5.8 SUSTAINABILITY	5-6
CHAPTER 6 – SPECIAL TOPICS/ISSUES/CONSIDERATIONS.....	6-1
6.1 COMPETING INTERESTS OF NATURAL RESOURCES.....	6-1
6.2 UTILITY CORRIDORS	6-1
6.3 CULTURAL RESOURCES AND COORDINATION WITH TRIBAL NATIONS	6-1
6.4 PRIVATE ACTIVITIES AND SHORELINE MANAGEMENT	6-2
CHAPTER 7 – PUBLIC AND AGENCY COORDINATION.....	7-1
7.1 PUBLIC, AGENCY, AND TRIBAL COORDINATION OVERVIEW	7-1
7.2 INITIAL STAKEHOLDER AND PUBLIC MEETINGS.....	7-1
7.3 PUBLIC AND AGENCY REVIEW OF DRAFT MP, EA, AND FONSI	7-2
7.4 TRIBAL COORDINATION	7-2
CHAPTER 8 – SUMMARY OF RECOMMENDATIONS	8-3
8.1 SUMMARY OVERVIEW	8-3
8.2 LAND CLASSIFICATION.....	8-3
CHAPTER 9 – BIBLIOGRAPHY	9-1
APPENDIX A – LAND CLASSIFICATION, MANAGING AGENCIES, AND RECREATION MAPS	A-1
APPENDIX B – NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DOCUMENTATION	B-1
APPENDIX C – WILDLIFE DOCUMENTS	C-1
APPENDIX D – PERTINENT LAWS.....	D-1
APPENDIX E – PUBLIC COMMENTS	E-1
APPENDIX F – ACRONYMS.....	F-1

LIST OF FIGURES

Figure 1.1 Ball Mountain Lake Vicinity Map.....	1-2
Figure 2.1 Hydrology (HUC 6, 8, 10,12) Map for Ball Mountain Lake (USGS; USGS, 2019).....	2-2
Figure 2.2 Groundwater Map for Ball Mountain Lake (VCGI, 2024)	2-3
Figure 2.3 Average Monthly Climate for Peru, Vermont, 1991-2020 (NOAA, 2025).....	2-6
Figure 2.4 Soil Classification Map (NRCS, 2025).....	2-9
Figure 2.5 Prime Farmland Soils Map (NRCS, 2025).....	2-12
Figure 2.6 EPA Level III Ecoregions of Vermont (EPA, 2013a).....	2-20
Figure 2.7 EPA Level IV Ecoregion at Ball Mountain Lake (EPA, 2013b)	2-21
Figure 2.8 Estimated Wetlands within Ball Mountain Lake (USFWS, 2025b)..	2-22
Figure 2.9 EPA EnviroMapper Hazardous, Toxic and/or Radioactive Waste Sites within 5 miles of Ball Mountain Lake (EPA, 2023; EPA, 2025c).....	2-24
Figure 2.10 Percent of Population by Age Group (2023).....	2-30
Figure 2.11 Area of Interest Employment by Sector (2023).....	2-33

LIST OF PHOTOS

Photo 2.1 Mountain Bike Riding at Ball Mountain.....	2-41
Photo 2.2 White Water Canoe Rafting.....	2-41
Photo 2.3 Friends of the West River Trail.....	2-43
Photo 2.4 West River Trail Head	2-43
Photo 2.5 Winhall Woods Walk Trail Head	2-44
Photo 5.1 Winhall Brook Camping Area	5-3
Photo 5.2 Overlook at Ball Mountain Lake	5-5

LIST OF TABLES

Table ES.1 2026 Proposed Land and Water Surface Classification at Ball Mountain Lake	4
Table 1.1 Ball Mountain Lake Design Memoranda.....	1-7
Table 1.2 Manuals and Reports for Ball Mountain Lake.....	1-7
Table 1.3 General Pertinent Information for Ball Mountain Lake (USACE, 1973)	1-7
Table 1.4 Pertinent Data for Ball Mountain Lake (USACE, 1973)	1-8
Table 2.1 Priority Waters Within the Ball Mountain Lake Federal Fee Boundary	2-5
Table 2.2 Soil Classifications at Ball Mountain Lake	2-8
Table 2.3 Prime Farmlands Identified at the Ball Mountain Lake and Dam (NRCS, 2025)	2-10
Table 2.4 Mammal Species Potentially Occurring within the Ball Mountain Lake Federal Fee Boundary	2-13
Table 2.5 Bird Species Potentially Occurring within the Ball Mountain Lake Federal Fee Boundary	2-13
Table 2.6 Reptile and Amphibian Species Potentially Occurring within the Ball Mountain Federal Fee Boundary	2-14
Table 2.7 Fish Species Potentially Occurring within the Ball Mountain lake Federal Fee Boundary	2-15
Table 2.8 Federally Listed Threatened and Endangered Species Potentially Occurring within the Ball Mountain Lake Federal Fee Boundary (USFWS, 2025a)	2-16
Table 2.9 Federally Protected Migratory Birds Potentially Occurring at Ball Mountain Lake.....	2-16
Table 2.10 State-Listed Conservation Species Potentially Occurring within the Ball Mountain lake Federal Fee Boundary.....	2-18
Table 2.11 Invasive Species Occurring at Ball Mountain Lake.....	2-19
Table 2.12 Wetlands at Ball Mountain Lake	2-22
Table 2.13 Population Estimates, and Future Population Projections (2010, 2020, 2023)	2-28
Table 2.14 Population Estimate By Sex (2023).....	2-29
Table 2.15 Population Estimate by Race/ Hispanic Origin (2023).....	2-30
Table 2.16 Population Estimate by Highest Level of Educational Attainment, Population 25 Years of Age and Older (2023)	2-32
Table 2.17 Annual Average Employment by Sector (2023).....	2-34
Table 2.18 Labor Force, Employment and Unemployment Rates, Annual Averages. 2-36	
Table 2.19 Number of Households and Average Household Size (2023)	2-36

Table 2.20 Median and Per Capita Income (2023).....	2-37
Table 2.21 Percent of Families and People Whose Income in the Past 12 Months is Below the Poverty Level (2023).....	2-38
Table 2.22 Ball Mountain Lake (BML) Total Visitation FY2019-2023.....	2-39
Table 2.23 Recreation Facilities at Ball Mountain Lake.....	2-40
Table 3.1 Recreational Objectives	3-2
Table 3.2 Natural Resource Management Objectives.....	3-3
Table 3.3 Visitor Information, Education, and Outreach Objectives	3-3
Table 3.4 Cultural Resources Management Objectives	3-4
Table 4.1 2026 Proposed Land and Water Surface Classification at Ball Mountain Lake	4-2
Table 8.1 2026 Proposed Land and Water Surface Classification at Ball Mountain Lake	8-4
Table 8.2 Justification for Proposed Land Classifications	8-4

CHAPTER 1 – INTRODUCTION

1.1 GENERAL OVERVIEW

Ball Mountain Lake is located on the West River in the Township of Jamaica, Windham County, Vermont. It lies in the southeastern part of the State, about 29 miles upstream from the confluence of the Connecticut and West Rivers at Brattleboro, Vermont and about 27 miles north of the Massachusetts border. It operates in conjunction with Townshend Dam, which is 9.5 miles downstream and also on the West River. The U.S. Army Corps of Engineers' (USACE) New England District (formerly New England Division) built Ball Mountain Dam and continues to operate the project.

The Master Plan is intended to serve as a comprehensive land and recreation management guide with an effective life of approximately 25 years. The focus of the plan is to guide the stewardship of natural and cultural resources and make provision for outdoor recreation facilities and opportunities on federal land associated with Ball Mountain Lake. The Master Plan identifies conceptual types and levels of activities, but does not include designs, project sites, or estimated costs. All actions carried out by the USACE, other agencies, and individuals granted leases to USACE lands must be consistent with the Master Plan. The Master Plan does not address the flood risk management of Ball Mountain Lake. The New England District first created a Master Plan for the reservoir in 1977. The 1977 Master Plan has served past its intended planning horizon of 25 years.

National USACE missions associated with water resource development projects may include flood risk management, water supply, water quality, navigation, recreation, environmental stewardship, and hydroelectric power generation. Most of these missions serve to protect the built environment and natural resources of a region from the climate extremes of drought and floods. This helps to create a more resilient and sustainable region for the health, welfare, and energy security of its citizens. Mitigation, while not a formal mission at USACE lakes, may be implemented to achieve the stewardship and recreation missions. Maintaining a healthy vegetative cover and native tree cover where ecologically appropriate on Federal lands within the constraints imposed by primary project purposes helps reduce stormwater runoff and soil erosion, mitigates air pollution, and moderates temperatures.

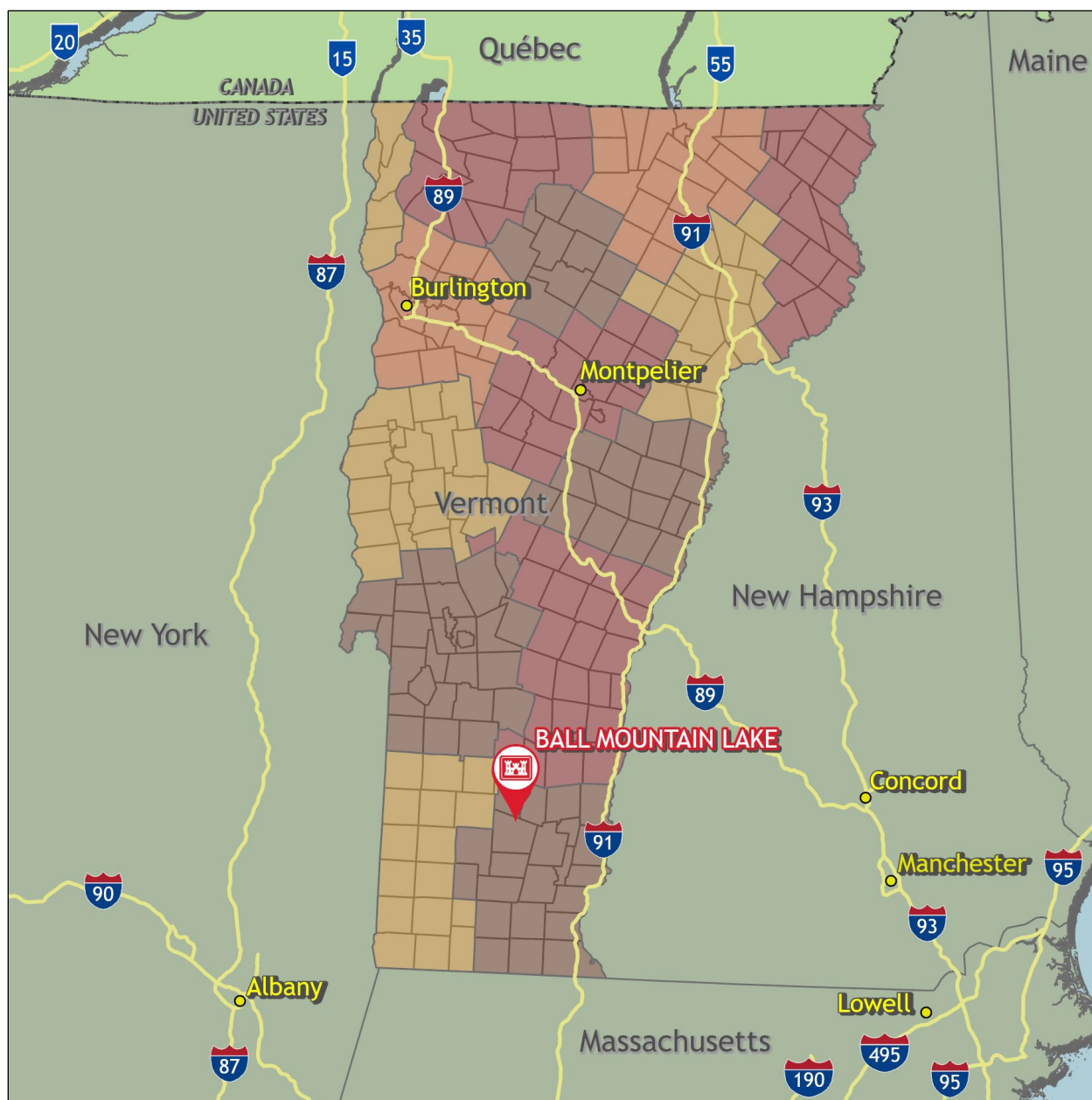


Figure 1.1 Ball Mountain Lake Vicinity Map

1.2 PROJECT AUTHORIZATION

The Ball Mountain Dam and Lake is a unit of the comprehensive plan for flood control in the Connecticut River Basin. The Flood Control Act of 1938, Public Law 761, 75th Congress, 3rd Session, as modified by the Flood Control Act of 1941, Public Law 228, 77th Congress, 1st Session and the Flood Control Act of 1944, Public Law 534, 78th Congress, 2nd Session. authorized the development and use of reservoirs for recreation and water conservation purposes.

Authorization for development and use of reservoir areas for public recreational, wildlife management, stewardship, and other purposes is also contained in Section 4 of

the Flood Control Act of 1944, as amended, and the Fish and Wildlife Coordination Act 1958 amendment.

1.3 PROJECT PURPOSE

Ball Mountain Lake has the primary authorized purposes of flood risk management, recreation, water quality, and fish and wildlife.

USACE initiated construction of Ball Mountain Dam in April 1956 and completed it in October 1961 at a cost of \$10,585,000. Ball Mountain Lake is operated in conjunction with Townshend Lake, 9.5 miles downstream, primarily to desynchronize flood flows of the West River from flood flows of the Connecticut River. The operation of the two dams is coordinated with other dams in the Connecticut River Basin to obtain maximum reduction in overall flood damages. They also provide protection to downstream West River communities, including Jamaica, Townshend, and Dummerston. One non-federal hydropower facility which produces approximately 2 megawatts of power is located at Ball Mountain Dam on the West River.

Construction of the recreational facilities at the reservoir began in June 1975 and were completed in June 1977. Winhall Brook Camping Area, in particular, is one of the main recreational attractions at Ball Mountain Lake. Camping, hunting, fishing, snowmobiling, white water canoeing and kayaking are popular activities enjoyed by an increasing number of people who prefer a wilderness type of environment to highly developed day use areas.

In addition to these missions, the USACE has an inherent mission for environmental stewardship of project lands while working closely with stakeholders and partners to provide regionally important outdoor recreation opportunities. Other laws, including but not limited to Public Law 91-190, National Environmental Policy Act of 1969 (NEPA) and Public Law 86-717, Forest Cover Act, place emphasis on the environmental stewardship of Federal lands and USACE-administered Federal lands, respectively.

1.4 PURPOSE AND SCOPE OF MASTER PLAN

In accordance with Engineering Regulation (ER) 1130-2-550, Recreation Operations and Maintenance Policies, Change 07, dated 30 January 2013 and Engineering Pamphlet (EP) 1130-2-550, Recreation Operations and Maintenance Guidance and Procedures, Change 05, dated 30 January 2013, most USACE water resources development projects having a federally owned land base require a Master Plan. The Master Plan works in tandem with the Operational Management Plan (OMP), which is the task-oriented implementation tool for the resource objectives and development needs identified in the Master Plan. This revision of the Master Plan aims to bring the Master Plan up to date to reflect current ecological, socio-demographic, and outdoor recreation trends that are impacting the lake, as well as those anticipated to occur within the next 25 years.

The Ball Mountain Lake Master Plan (hereafter Master Plan) is the strategic land use management document that guides the efficient, cost-effective, comprehensive management, development, and use of recreation, natural resources, and cultural resources throughout the life of the Ball Mountain Lake project. It is a vital tool for responsible stewardship and sustainability of the project's natural and cultural resources for the benefit of present and future generations. The Master Plan guides and articulates USACE responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources. It is a dynamic and flexible tool designed to address changing conditions. The Master Plan focuses on carefully crafted resource-specific goals and objectives. It ensures that equal attention is given to the economy, quality, and needs in the management of resources and facilities, and that goals and objectives are accomplished at an appropriate scale.

The master planning process encompasses a series of interrelated and overlapping tasks involving the examination and analysis of past, present, and future environmental, recreational, and socioeconomic conditions and trends. With a generalized conceptual framework, the process focuses on the following four primary components:

- Regional and ecosystem needs
- Project resource capabilities and suitability
- Expressed public interests that are compatible with Ball Mountain Lake's authorized purposes
- Environmental sustainability elements

It is important to note what the Master Plan does not address. The Master Plan does not address details of design, management and administration, and implementation. The Ball Mountain Lake OMP instead covers these topics. In addition, the Master Plan does not address the specifics of regional water quality, shoreline management (a term used to describe primarily vegetation modification or permits by neighboring landowners), or water level management, nor does it address the operation and maintenance of prime project operations facilities such as the dam embankment, gate control outlet, and spillway. Additionally, the Master Plan does not address the flood control, water supply, and low flow augmentation purposes of Ball Mountain Lake with respect to management of the water level in the lake.

The previous Master Plan was sufficient for prior land use planning and management but changes in outdoor recreation trends, regional land use, population, current legislative requirements, and USACE management policy have occurred over the past decades. Additionally, factors such as increasing fragmentation of wildlife habitat, national policies related to land management, climate change, and growing demand for recreational access and protection of natural and cultural resources affect Ball Mountain Lake and the region in general. In response to these escalating pressures and trends, USACE is implementing and adopting a full revision of the 1977 Ball

Mountain Lake Master Plan. The Master Plan revision will update land classifications and include new resource management goals and objectives.

1.5 BRIEF WATERSHED AND PROJECT DESCRIPTION

Ball Mountain Lake consists of 1,227 acres, of which approximately 965 acres are in fee simple ownership with 262 acres of flowage easements on the remainder. The reservoir is characteristic of the generally rough relief found throughout the West River valley, with narrow valley floors and steep hillsides. About 74 percent of the project is wooded, 16 percent is open fields, and 10 percent is water area. The woodland area consists of a mixed growth of northern hardwoods with some hemlock, pine, fir and spruce. Most of the cleared land is classified as tillage and was used either to produce hay or for grazing. This region is characterized by a mixture of low mountains and narrow valleys as well as some relatively rugged, steep, high elevation mountains, with a colder climate and different vegetation than surrounding lower elevation regions.

The West River watershed, located in southern Vermont within Windham, Bennington, Rutland and Windsor counties, is generally elongated with a northwest-southeast axis, a length of about 38 miles and a maximum width of 18 miles. The West River forms the largest drainage system in southeastern Vermont and has a watershed of 423 square miles. From the mouth of the West River to Ball Mountain Lake, the watershed is hilly with steep wooded slopes and has little well-defined flood plain area. Elevations vary from 220 feet MSL at the river mouth to 3500 feet at several points on the watershed divide. The West River and its tributaries all have relatively steep gradients conducive to the rapid discharge of runoff.

The Ball Mountain Dam is a rolled earth and rockfill structure 915 feet in length with a maximum height of 265 feet above the stream bed. The top of the dam is at elevation 1,052 feet, mean sea level (MSL). It has a side channel spillway 235 feet long at elevation 1,017 feet MSL. This spillway is an uncontrolled ogee weir and chute in rock. The outlet works include a 13' 6" diameter tunnel which is 864 feet long. Three vertical lift gates, each 5' 8" by 10' 0" are operated from a combined tower intake and gate structure. In 2012, the Federal Energy Regulatory Commission (FERC) issued a license to Blue Heron Hydro, LLC for the Ball Mountain Hydroelectric Project, which was constructed by 2016. The hydropower facility consists of two 8.8-foot-high, 5.7-foot-wide turbine-generator arrays, installed in the openings of the existing Ball Mountain Dam left and right slide gates, each containing six horizontal mixed-flow turbines directly connected to six generator units; an 18.17-foot-deep, 39.75-foot-wide working platform located on top of the existing intake tower; a 14-footwide, 20-foot-long equipment area containing a pre-fabricated control building, switch gear, transformers, and other electrical equipment; and appurtenant utilities and equipment. During normal operations, the existing left and right slide gates are the primary facilities used to release water from Ball Mountain Lake, with water passing through the turbine arrays and into the existing concrete outlet conduit before returning to the West River.

The capacity of the reservoir at the spillway crest elevation is 54,450 acre-feet, which is the equivalent of a runoff of 5.92 inches from the net drainage area of 172 square miles at Ball Mountain Dam. When filled to spillway crest, the reservoir is about 6.5 miles long with a surface area of 810 acres. The elevation of the summer recreation lake is 870.5 feet MSL. The lake has a maximum depth of 65 feet, the average being about 30 feet. Its capacity is 2,000 acre-feet, which is equal to a 0.22 inch runoff. The total area covered by the lake is 75 acres. An operating pool with a surface area of about 20 acres at elevation 830.5 feet MSL is maintained to protect the gates from freezing during the winter. This pool has a maximum depth of above 65 feet during June 15 to November 1. Based on the fish hydro passage, the guidance for the winter pool is to have a maximum depth of 44 feet during November 1 to June 15. These depths are also regulated by the control of the gates.

1.6 PROJECT ACCESS

Ball Mountain Lake is readily accessible over a good highway network. Interstate Highway 91 stretches northward from the coast of Connecticut at New Haven, along the Connecticut River Valley of Massachusetts and Vermont to the Canadian Border. Sections of this multi-lane divided highway provide rapid year-round access from Western Massachusetts through the City of Brattleboro, Vermont, located at the mouth of the scenic West River Valley. U.S. 7 also runs north-south and brings in traffic within 15 to 20 miles of the reservoir. Vermont 100, also running north-south, and Vermont 30, running northwest, pass through the project area, while Vermont 11, an east-west highway, passes 5 miles to the north. The park entrance is located off Vermont 30 on Ball Mountain Lane.

1.7 PRIOR DESIGN MEMORANDA AND PLANNING REPORTS

Design Memoranda (DM) and Project Reports approved and set forth design and development plans for all aspects of the project including the prime flood risk management facilities, real estate acquisition, road and utility relocations, reservoir clearing, and the master plan for recreation development and land management prior to 1999, when the use of DMs was terminated. The USACE completed all DMs for Ball Mountain Lake in 1961. These DMs include General Design, Real Estate, Master Plan for Reservoir Development, and Concrete Aggregates. A list of the DMs for Ball Mountain Lake is listed in Table 1.1 and the manuals and reports for Ball Mountain Lake are listed in Table 1.2.

Table 1.1 Ball Mountain Lake Design Memoranda

DM No.	Design Memoranda Title	Date Approved
1	General Design	December 1956
2	Real Estate	November 1956
3	Master Plan for Reservoir Development	April 1961
*	Concrete Aggregates	December 1956

*This memorandum was prepared for North Hartland, North Springfield, Ball Mountain and Townshend Dams.

Table 1.2 Manuals and Reports for Ball Mountain Lake

Subject	Date
Operations and Maintenance (O&M) Manual*	May 1996
Water Control Manual	September 1973
Emergency Action Plan	March 2021 (Draft)

*May 1996 document was unapproved. This document was under revision during the 2026 Ball Mountain Master Plan revision.

1.8 PERTINENT PROJECT INFORMATION

Table 1.3 provides general pertinent information for Ball Mountain Lake. Table 1.4 provides pertinent data regarding key reservoir elevations and storage capacity at Ball Mountain Lake.

Table 1.3 General Pertinent Information for Ball Mountain Lake (USACE, 1973)

Location	
Basin	Connecticut River
Stream	West River
River Mile	29 miles upstream from the confluence of the Connecticut and West Rivers
County	Windham County
State	Vermont
Drainage Area	
Above Dam	172 square miles
Dam	
Type	Rolled earth fill, rock slope protection, impervious core
Length	915 feet
Height	265 feet
Top Width	20 feet
Spillway	
Type	Uncontrolled, ogee weir and chute spillway in rock

Spillway	
Crest Elevation	235 feet, NGVD29
Design Head	30 feet
Design Discharge	150,000 Cubic Feet per Second (CFS)
Outlet Works	
Type	Circular Concrete Tunnel
Tunnel Length	864 feet
Tunnel Inside Diameter	13.5 feet
Service Gate Type	Hydraulic slide
Service Gate Size	Three, 5' – 8" x 10' – 0"
Downstream Channel Capacity	5,000 +/- Cubic Feet per Second (CFS)
Real Estate Acquisition	
Fee Purchase	965 acres (985 ft. NGVD29)
Flowage Easement	262 acres (1,057 ft. NGVD29)

Table 1.4 Pertinent Data for Ball Mountain Lake (USACE, 1973)

Reservoir Feature	Elevation (MSL)	Stage (feet)	Surface Area (acres)	Capacity (acre-feet)	Capacity (inches on drainage area)
Inlet Elevation	805.5	0	0	0	0
Conservation Pool	870.5	65.0	75	2,000 (net)	0.22 (net)
Spillway Crest	1017.0	211.5	810	52,450 (net)	5.7 (net)
Maximum Surcharge	1047.0	241.5	1,160	29,550 (net)	3.2 (net)
Top of Dam	1052.0	246.5	-	-	-
Fish Passage Pool	849.5	44	48	680	0.06

*Surface acre references within the text of the 2026 Master Plan align with Table 4.1 2026 Land and Water Surface Classification at Ball Mountain Lake.

CHAPTER 2 – PROJECT SETTING AND FACTORS INFLUENCING MANAGEMENT AND DEVELOPMENT

2.1 HYDROLOGY

2.1.1 Surface Water

Surface waters are categorized by hydrologic units. Hydrologic units are classified by the U.S. Geological Survey (USGS) using a Hydrologic Units Code (HUC) system (USGS, 2024; USGS, 2020). As shown in Figure 2.1, the units are classified from largest HUC with a two-digit region (i.e., the New England Region), encompassing the largest area, to a twelve-digit sub-watershed HUC. Ball Mountain Lake is classified by sub-watersheds as follows:

- 01 (HUC 2: Region) – New England Region
- 0108 (HUC 4: Sub-region) – Connecticut River Basin
- 010801 (HUC 6: Basin) – Upper Connecticut
- 01080107 (HUC 8: Sub Basin) – West River- Connecticut River
- 0108010703 (HUC 10: Watershed) – Headwaters West River Watershed
- 010801070306 (HUC 12: Sub-watershed) – Ball Mountain Brook
- 010801070305 (HUC 12: Sub-watershed) – Cobb Brook - West River
- 010801070303 (HUC 12: Sub-watershed) – Flood Brook – West River
- 010801070304 (HUC 12: Sub-watershed) – Winhall River

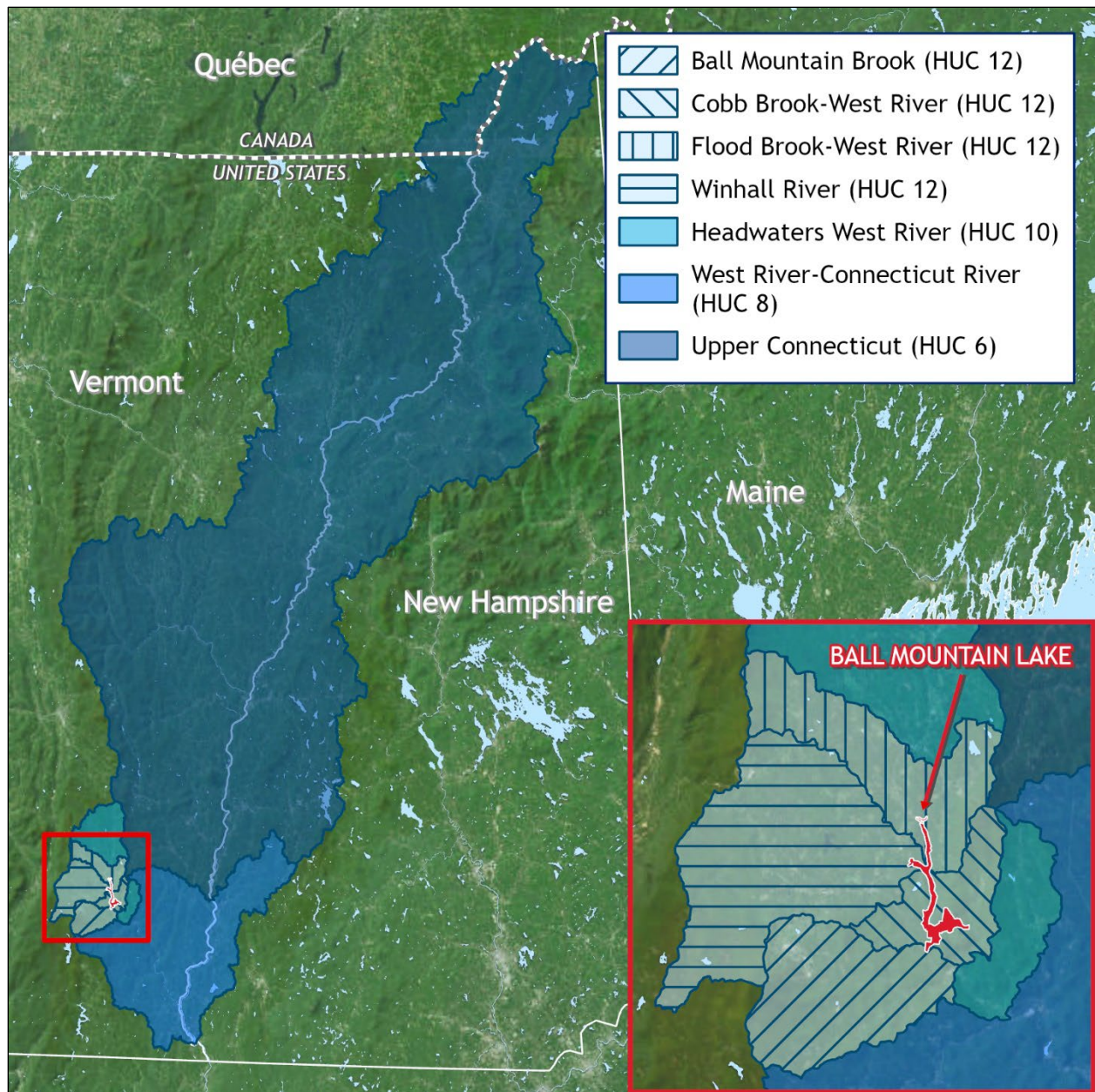


Figure 2.1 Hydrology (HUC 6, 8, 10,12) Map for Ball Mountain Lake (USGS; USGS, 2019)

2.1.2 Ground Water

The groundwater at Ball Mountain Lake is limited to New England crystalline-rock aquifers. Igneous, metasedimentary, and metavolcanic rocks, generally confined, characterize the aquifers in Vermont. The well depths of 100-600 feet are common, with the potential for some wells to exceed 800 feet before reaching water. Groundwater generally yields 1- 10 gallons per minute but can exceed 100 gallons per minute. The water is generally suitable for most uses. (Water Resources Division, USGS, 2000). In Windham County, there are 11,020 wells with 754 located wells. The mean yield is

approximately 11.6 gallons per minute with a maximum reported yield of 402 gallons per minute. The mean depth is approximately 271.8 feet with a maximum reported depth of 1600 feet (Vermont Geological Survey, 2010). As shown in Figure 2.2, the state of Vermont has identified important areas of public groundwater source protection. The nearest major aquifer to Ball Mountain Lake is the New York and New England Carbonate-rock Aquifers. Other major aquifers nearby include the Early Mesozoic Basin Aquifers and the New York Sandstone Aquifers.

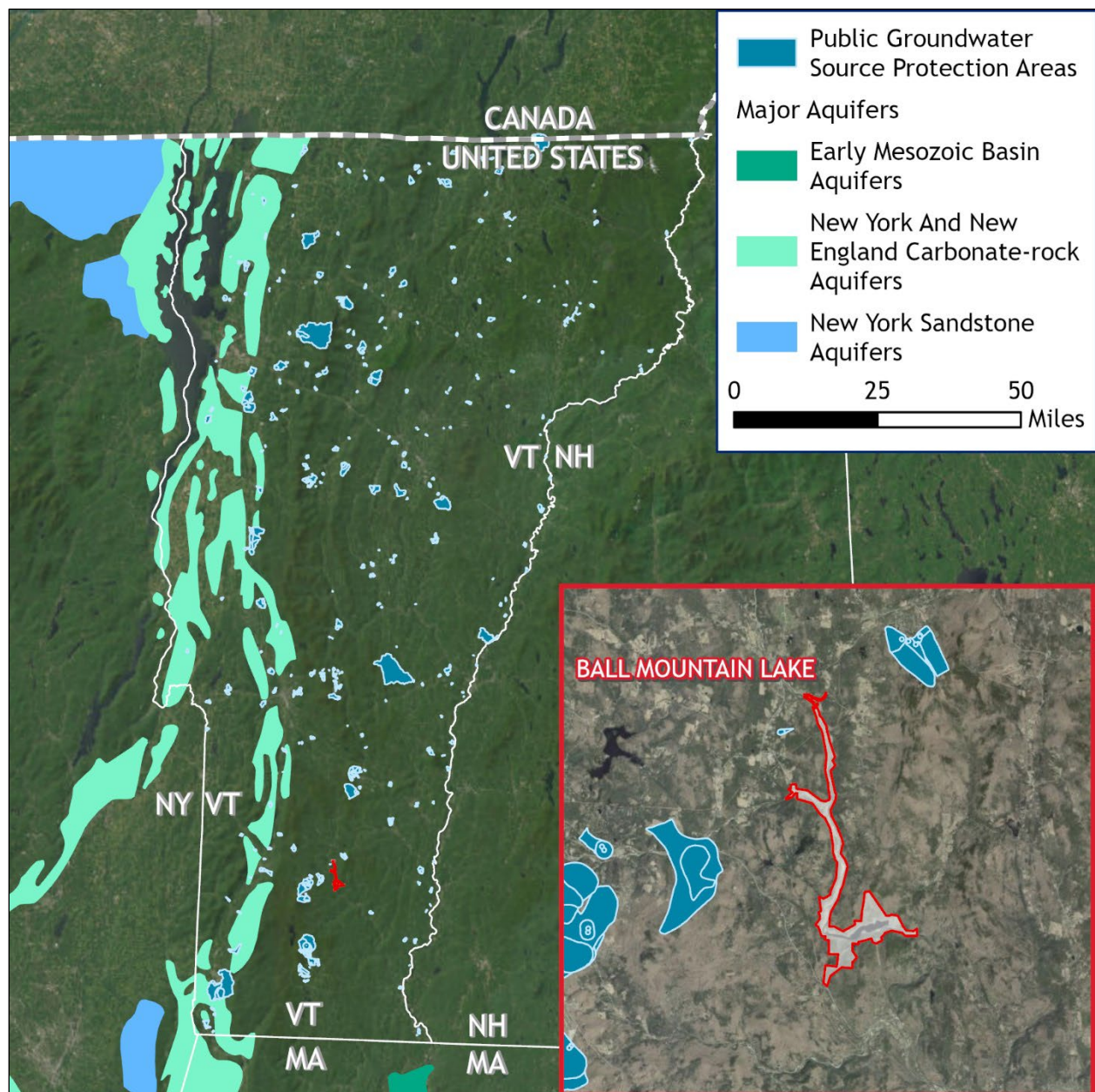


Figure 2.2 Groundwater Map for Ball Mountain Lake (VCGI, 2024)

2.2 SEDIMENTATION AND SHORELINE EROSION

Over time alluvial sediments have accumulated behind the dam as sedimentation occurs at any impounded waterway. During times of heavy runoff events, high suspended sediment levels can be visually observed entering the reservoir from upstream. Erosion/runoff control will be an integral part of resource management activities. Control measures, including proper layout, improved drainage, minimum vegetation removal, erosion bars and seeding, will be accomplished in all management and contract work through all phases of the activity. Results of erosion control efforts will be monitored to ensure erosion is controlled. Frequent inspection will be made of problem areas after erosion has been controlled and periodic maintenance will be scheduled as needed to prevent degradation.

The permanent pool has helped to minimize shoreline erosion. Project staff regularly monitor for erosion and there are currently no concerns for the project site.

2.3 WATER QUALITY

The Vermont Department of Environmental Conservation (VT DEC) classifies surface waters and establishes Water Quality Standards (WQS) in order to manage and protect water quality under the Clean Water Act. Surface waters within the Ball Mountain Lake federal fee boundary are designated as Class B (2) waters. Class B (2) waters are managed for high quality aquatic habitat, and have limited to moderate differences from their natural condition. These waters provide good quality for: aquatic biota and wildlife; aesthetics, boating; fishing; swimming and other primary contact recreation. Class B (2) waters may be suitable as public water sources with filtration and disinfection or other required treatment. In addition to these classifications, surface waters may be designated as either cold water or warm water fish habitat. The Winhall and West Rivers are designated as cold water fish habitat (VT DEC, 2022).

The VT DEC maintains the Vermont Priority Waters List that identifies impaired (Part A) and altered (Part F) surface waters. Impaired waters are segments of surface waters not meeting the WQS. These waters are subject to pollution control requirements under Section 303(d) of the Clean Water Act. Altered waters typically result from flow fluctuation, obstructions, or other water level manipulations associated with hydroelectric facilities, dam operations, water withdrawals from industrial or municipal water supplies, or snowmaking purposes (VT DEC, 2022). The West River, specifically the section between the Ball Mountain Dam and the Townshend Dam (Waterbody ID: VT11-10), is identified as being impaired and altered (VT DEC, 2025). Table 2.1 describes the impaired or altered waters within the Ball Mountain Lake federal fee boundary.

Table 2.1 Priority Waters Within the Ball Mountain Lake Federal Fee Boundary

Listing	Altered Uses ¹	Impairment	Problem
303(d) List of Impaired Waters (Part A)	RF	Temperature	Artificial flow regime at dam
Surface Waters Altered by Flow Regulation (Part F)	AH, ALS, CR	N/A	Artificial flow regime at dam

¹ Altered Uses: (AH) Aquatic habitat to support aquatic biota, wildlife, or plant life; (ALS) Aquatic biota and wildlife that may utilize or are present in the waters; (CR) The use of waters for swimming and other priority contact recreation; (RF) The use of waters for fishing and related recreational uses.

Water quality monitoring periodically occurs within the Ball Mountain Lake federal fee boundary associated with hydroelectric operations and the VT DEC's Watershed Management Division. The VT DEC issued the Ball Mountain Dam Hydroelectric Project a water quality certificate in accordance with the Clean Water Act. The current Water Quality Certificate requires dissolved oxygen and temperature monitoring of West River, downstream of Ball Mountain Dam (VT DEC, 2010). In addition, the VT DEC's Watershed Management Division has also conducted water quality monitoring, including biological community sampling, within the federal fee boundary (VANR, 2025).

The VT DEC also prepares tactical basin plans to address water quality at a broader level. Tactical basin plans detail goals, objectives, and projects of watersheds in accordance with the Clean Water Act. Ball Mountain Lake is located within the tactical basin for the West, Williams, and Saxtons Rivers and adjacent Connecticut River tributaries. The VT DEC is currently updating this tactical basin plan, and a public release is anticipated in the summer of 2026 (VT DEC, n.d.); Appendix E).

2.4 AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has set National Ambient Air Quality Standards for six principal pollutants. These pollutants include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead. An area is considered to be in attainment when it meets or is below a given standard for a criteria pollutant. The State of Vermont is currently in attainment for all criteria pollutants (EPA, 2025a).

2.5 CLIMATE AND GREENHOUSE GASES

2.5.1 Climate

Climate classification systems describe regional climates through various factors. The Köppen-Geiger Climate Classification (KCC) system classifies regions according to vegetation climate zones, precipitation, and temperature (Kottek, Frieser, Beck, Rudolf, & and Rubel, 2006; Belda, Holtanova, Halenka, & and Kalvova, 2014). Ball Mountain Lake has a KCC of Dfa, which is described as a humid continental climate (Belda, Holtanova, Halenka, & and Kalvova, 2014; NOAA, 2023). This classification is characterized by a humid climate with no dry season and a hot summer. The average temperatures of the warmest months are over 65°F, with the coldest months under 17°F. Rainfall occurs year-round but may be variable (NOAA, 2023).

The National Oceanic and Atmospheric Administration (NOAA)'s National Weather Service monitors climate throughout weather stations in Vermont. The NOAA Online Weather Data tool summarizes local climate data, such as monthly climate normals. The monthly climate normals obtained for Ball Mountain Lake describe the average precipitation and temperature from 1991-2020. These normals for Ball Mountain Lake are presented in Figure 2.3 and were obtained from the closest weather station located in Peru, VT.

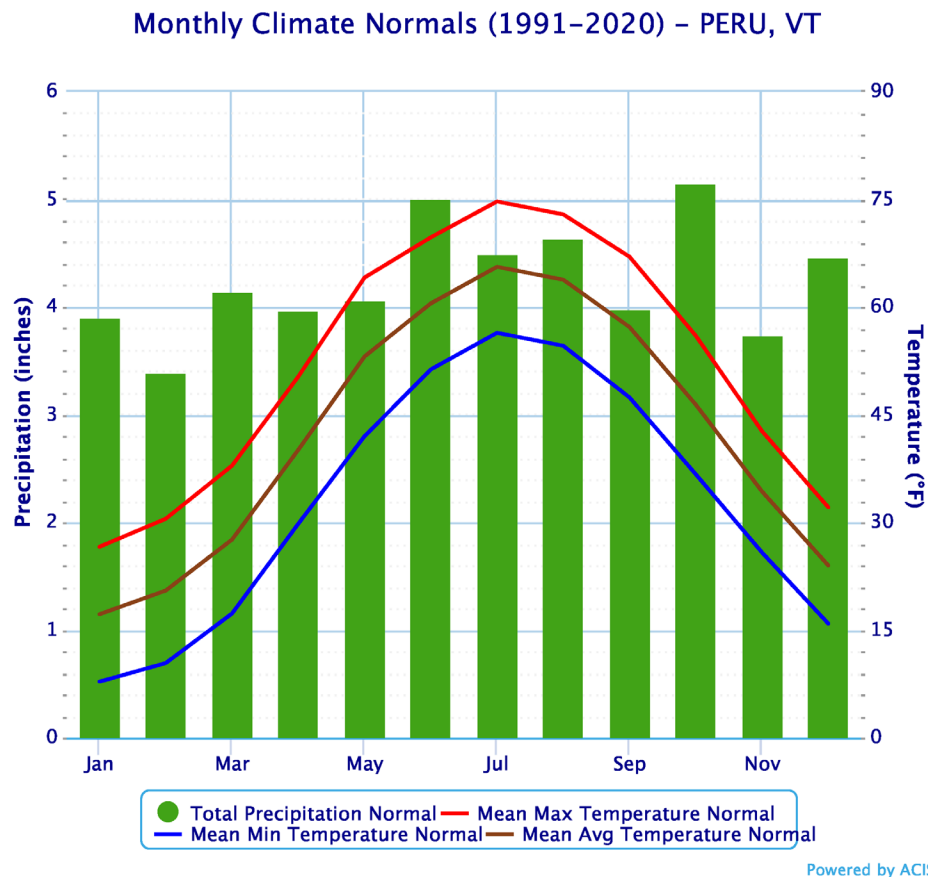


Figure 2.3 Average Monthly Climate for Peru, Vermont, 1991-2020 (NOAA, 2025)

2.5.2 Greenhouse Gases

The EPA's Greenhouse Gas Reporting Program mandates GHG reporting requirements for certain facilities and suppliers that directly emit GHG (40 CFR 98.1(a)). Examples of GHG facilities include stationary fuel combustion sources (Subpart C), petroleum and natural gas systems (Subpart W), and industrial wastewater treatment (Subpart II) (Table A-3 and A-4 to Subpart A of Part 98, Title 40). The EPA's Facility Level Information on Greenhouse Gases Tool (FLIGHT) was used to identify GHG reporting facilities. No facilities were identified near the Ball Mountain Lake federal fee boundary or in Windham County (EPA, 2025b).

2.6 TOPOGRAPHY, GEOLOGY, AND SOILS

2.6.1 Topography

The general topography of Ball Mountain Lake is hilly with steep, wooded slopes. The reservoir lies on the western edge of the eastern foothills of the Green Mountains. Ball Mountain Lake is situated in a narrow valley flanked by Shatterack Mountain to the north at 1960 feet MSL and Ball Mountain to the south at 1771 feet MSL. In the sixteen miles between the upstream end of Ball Mountain Lake and the outlet of Townshend Lake, the river falls some 560 feet, or an average of 35 feet per mile.

The West River valley is located within the Green Mountain Section of the New England physiographic province in Southeastern Vermont. This rugged physiographic zone forms the backbone of Vermont and runs for about 160 miles north-south. The Green Mountains are part of the larger Appalachian Mountain System. The mature range of mountains is characterized by peaks which average 2,000 feet above sea level, steep valley walls and limited floodplains adjacent to the dissecting streams. The New England Upland lies to the east. It is a plateau-like region that has been dissected by streams and crossed by several invasions of continental glaciers. Because of stream dissection, the topography is in many places quite irregular and often rugged.

2.6.2 Geology

The project area, which is situated in Windham County, is characterized by dissected and glaciated peneplains. It was subject to glaciation during the Ice Age or Pleistocene Epoch, beginning about one million years ago. The river originally eroded through the relatively thin series of Cretaceous and Comanchean deposits which overlaid the harder rocks of the fall line peneplain. Most of the valley near the reservoir is characterized by kame terraces and outwash deposits left by glacial melt waters, while the steeper glaciated terrain exhibits many large outcroppings of bedrock with some sheer cliffs near the tops of surrounding hills.

The bedrocks of the region are principally highly folded and faulted metamorphosed sediments, schists, quartzites and gneisses of Ordovician age with some igneous intrusive. Locally, there are deposits of talc, limestone, serpentine and steatite which have been quarried and mined in the past. At the project, bedrock, sericitic schist, is generally exposed at very shallow depths to near river edge on the left abutment and is deeply buried under glacial till in the stream section and in the lower half of the right abutment to the dam, or to terrace elevation of about 900 feet NGVD, where it again becomes exposed to the summit of Ball Mountain.

2.6.3 Soils

The non-irrigated land capability classification from the Natural Resource Conservation Service (NRCS) shows there are 8 possible general classifications (Class I through Class VIII), but only 6 occur at Ball Mountain Lake. The erosion hazards and plant cultivation limitations for use increase as the class number increases. Class I has few limitations, whereas Class VIII has many. The NRCS' Web Soil Survey provided the soil class data for project lands in Table 2.2. This data is a standard component of

natural resource inventories on USACE lands. This data, however, is not recorded in the USACE Natural Resource Management (NRM) system.

Table 2.2 Soil Classifications at Ball Mountain Lake

Soil Class	Acreage
Class I	42
Class II	1
Class III	108
Class IV	17
Class V	0
Class VI	144
Class VII	545
Class VIII	0

(Source: NRI Level I Inventory)

The descriptions of the soils and land capability classifications below demonstrate the relative general potential for project lands. The different soils are mapped in Figure 2.4. The NRCS maintains detailed information on all soil types surrounding Ball Mountain Lake in various websites and datasets.

- Class I soils have slight limitations that restrict their use.
- Class II soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.
- Class III soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
- Class IV soils have very severe limitations that restrict the choice of plants or require very careful management, or both.
- Class V soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
- Class VI soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
- Class VII soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife.
- Class VIII soils and miscellaneous areas have limitations that preclude their use for commercial plant production and limit their use to recreation, wildlife, or water supply or for aesthetic purposes.

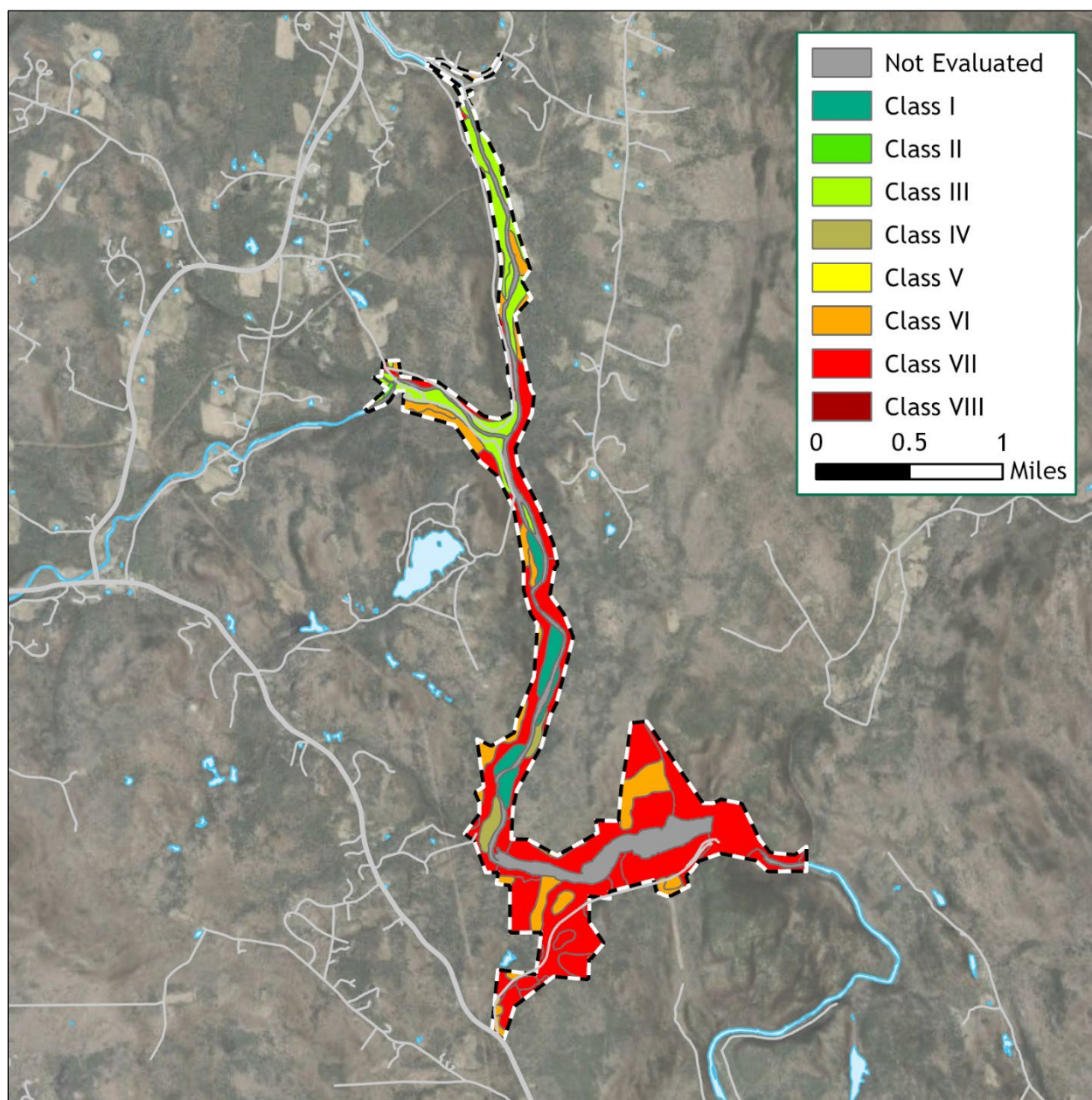


Figure 2.4 Soil Classification Map (NRCS, 2025)

2.6.4 Prime Farmland

Section 1541(b) of the Farmland Protection Policy Act of 1980 and 1995 (7 U.S.C. 4202(b)) requires federal agencies to take into account the adverse effects of federal programs on the preservation of farmland and to consider alternative actions, as appropriate, that could lessen such adverse effects.

The NRCS's Web Soil Survey identifies soil map units that meet the definition of prime farmland, unique farmland, or other farmland of statewide or local importance, under Section 1540(c)(1) of the Farmland Policy Act of 1980 and 1995 (7 U.S.C. 4201(c)(1)). Farmland classifications for soil map units within the Ball Mountain Lake federal fee boundary are presented in Table 2.3 and Figure 2.5. An estimated 110.2 acres are classified as farmland of statewide importance (NRCS, 2025)

Table 2.3 Prime Farmlands Identified at the Ball Mountain Lake and Dam (NRCS, 2025)

Map Symbol	Map Unit Name	Farmland Classification
16B	Adams loamy sand, 3 to 8 percent slopes	Farmland of state importance
17B	Worden loam, 3 to 8 percent slopes	Farmland of state importance
18B	Worden loam, 3 to 8 percent slopes, very bouldery	Not prime farmland
18C	Worden loam, 8 to 15 percent slopes, very bouldery	Not prime farmland
23	Ondawa fine sandy loam, 0 to 3 percent slopes, occasionally flooded	Prime farmland if protected from flooding or not frequently flooded during the growing season
44D	Mundal fine sandy loam, 15 to 25 percent slopes, very stony	Not prime farmland
48B	Rawsonville-Hogback fine sandy loams, 3 to 8 percent slopes, rocky	Not prime farmland
48C	Rawsonville-Hogback fine sandy loams, 8 to 15 percent slopes, rocky	Not prime farmland
48D	Rawsonville-Hogback fine sandy loams, 15 to 25 percent slopes, rocky	Not prime farmland
48E	Rawsonville-Hogback fine sandy loams, 25 to 50 percent slopes, rocky	Not prime farmland

Map Symbol	Map Unit Name	Farmland Classification
49C	Houghtonville-Rawsonville fine sandy loams, 8 to 15 percent slopes, very bouldery	Not prime farmland
49D	Houghtonville-Rawsonville fine sandy loams, 15 to 25 percent slopes, very bouldery	Not prime farmland
49E	Houghtonville-Rawsonville fine sandy loams, 25 to 50 percent slopes, very bouldery	Not prime farmland
50B	Colton gravelly sandy loam, 3 to 8 percent slopes	Farmland of statewide importance
50C	Colton gravelly sandy loam, 8 to 15 percent slopes	Not prime farmland
50D	Colton gravelly sandy loam, 15 to 25 percent slopes	Not prime farmland
52A	Sheepscot fine sandy loam, 0 to 3 percent slopes	Farmland of statewide importance
60C	Houghtonville fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
61C	Houghtonville fine sandy loam, 8 to 15 percent slopes, very stony	Not prime farmland
61D	Houghtonville fine sandy loam, 15 to 25 percent slopes, very stony	Not prime farmland
61E	Houghtonville fine sandy loam, 25 to 50 percent slopes, very stony	Not prime farmland
65D	Hogback-Rawsonville fine sandy loams, 15 to 25 percent slopes, very rocky	Not prime farmland
65E	Hogback-Rawsonville fine sandy loams, 25 to 50 percent slopes, very rocky	Not prime farmland
W	Water	Not prime farmland

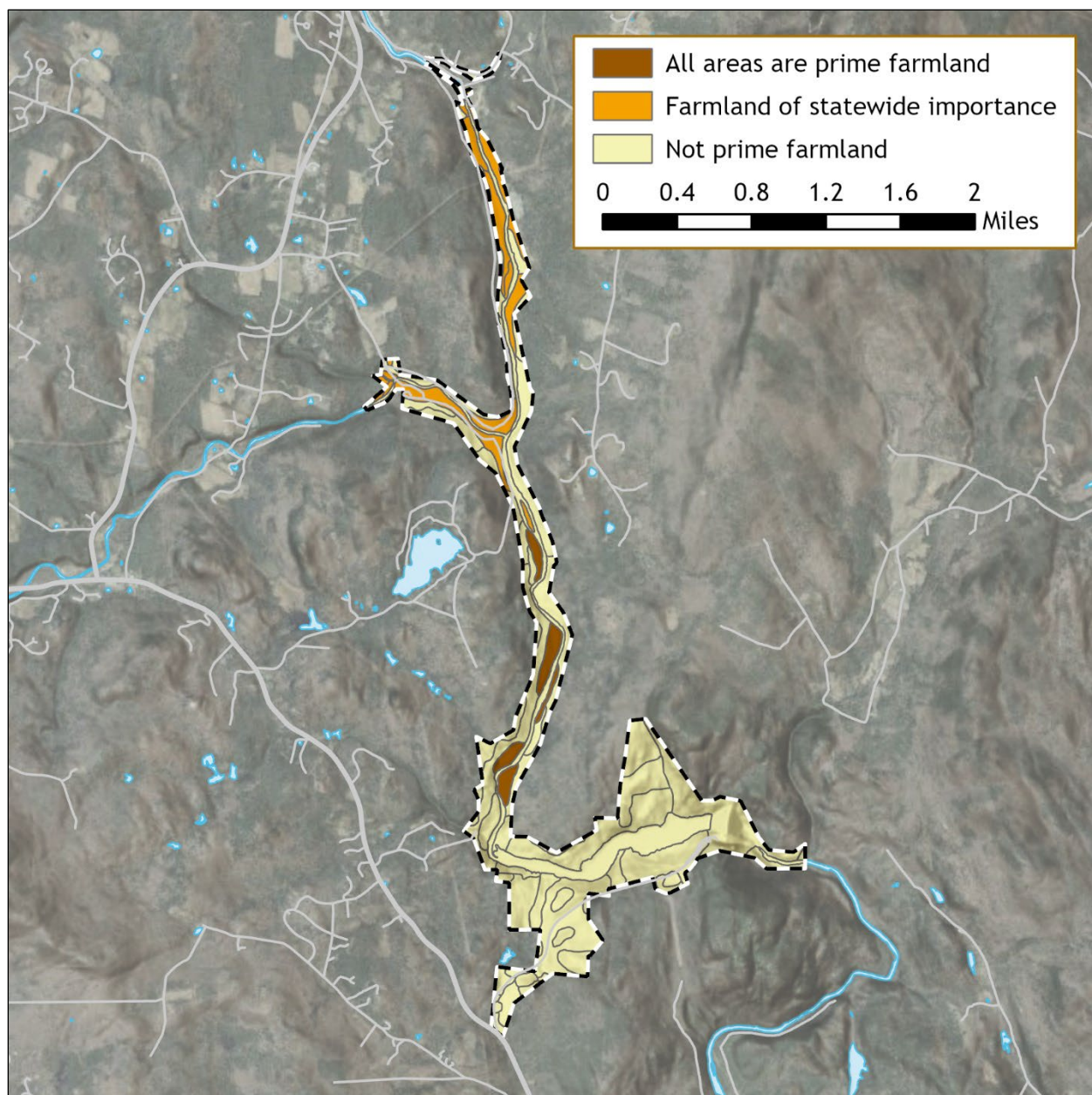


Figure 2.5 Prime Farmland Soils Map (NRCS, 2025)

2.7 NATURAL RESOURCE ANALYSIS

2.7.1 Fish and Wildlife Resources

Wildlife occurring at Ball Mountain Lake are typical of Windham County. Tables 2.4 to Table 2.6 list wildlife species that may occur at Ball Mountain Lake (VDFW, 2025a; VDFW, 2022; USACE, 1982; Vermont Reptile and Amphibian Atlas, 2025).

As described in Section 2.3, the West and Winhall Rivers are designated as cold water fish habitat. Ball Mountain Lake supports a limited warm water fishery due to water level fluctuations, lack of cover, and lack of aquatic vegetation. Table 2.7 lists fish species that may occur at Ball Mountain Lake and tributaries within the federal fee boundary (USACE, 1977).

Table 2.4 Mammal Species Potentially Occurring within the Ball Mountain Lake Federal Fee Boundary

Common Name	Scientific Name
Coyote	<i>Canis latrans</i>
American beaver	<i>Castor canadensis</i>
Snowshoe hare	<i>Lepus americanus</i>
River otter	<i>Lontra canadensis</i>
Bobcat	<i>Lynx rufus</i>
Groundhog	<i>Marmota monax</i>
Striped skunk	<i>Mephitis mephitis</i>
White-tailed deer	<i>Odocoileus virginianus</i>
Muskrat	<i>Ondatra zibethicus</i>
Fisher	<i>Pekania pennanti</i>
Raccoon	<i>Procyon lotor</i>
Gray squirrel	<i>Sciurus carolinensis</i>
Eastern cottontail	<i>Sylvilagus floridanus</i>
Red squirrel	<i>Tamias hudsonicus</i>
Eastern chipmunk	<i>Tamias striatus</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Black bear	<i>Ursus americanus</i>
Red fox	<i>Vulpes vulpes</i>

Table 2.5 Bird Species Potentially Occurring within the Ball Mountain Lake Federal Fee Boundary

Common Name	Scientific Name
Wood duck	<i>Aix sponsa</i>
Dabbling ducks	<i>Anas</i> spp.

Common Name	Scientific Name
Canada goose	<i>Branta canadensis</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Broad-winged hawk	<i>Buteo platypterus</i>
Northern flicker	<i>Colaptes auratus</i>
Rock pigeon	<i>Columba livia</i>
American crow	<i>Corvus brachyrhynchos</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Downy woodpecker	<i>Dryobates pubescens</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>
Peregrine falcon	<i>Falco peregrinus</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Dark-eyed junco	<i>Junco hyemalis</i>
Hairy woodpecker	<i>Leuconotopicus villosus</i>
Hooded merganser	<i>Lophodytes cucullatus</i>
Wild turkey	<i>Meleagris gallopavo</i>
Common merganser	<i>Mergus mergansar</i>
Double-crested cormorant	<i>Nannopterum auritum</i>
Osprey	<i>Pandion haliaetus</i>
Black-capped chickadee	<i>Poecile atricapillus</i>
American woodcock	<i>Scolopax minor</i>
Ovenbird	<i>Seiurus aurocapilla</i>
Eastern bluebird	<i>Sialia sialis</i>
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>
American goldfinch	<i>Spinus tristis</i>
American robin	<i>Turdus migratorius</i>

Table 2.6 Reptile and Amphibian Species Potentially Occurring within the Ball Mountain Lake Federal Fee Boundary

Common Name	Scientific Name
Spotted salamander	<i>Ambystoma maculatum</i>
American toad	<i>Anaxyrus americanus</i>
American bullfrog	<i>Aquarana catesbeianus</i>
Common snapping turtle	<i>Chelydra serpentina</i>
Eastern painted turtle	<i>Chrysemys picta</i>
Spotted turtle	<i>Clemmys guttata</i>
Dusky salamander	<i>Desmognathus fuscus</i>
Ring-necked snake	<i>Diadophis punctatus</i>
Two-lined salamander	<i>Eurycea bislineata</i>
Wood turtle	<i>Glyptemys insculpta</i>
Spring salamander	<i>Gyrinophilus porphyriticus</i>
Gray treefrog	<i>Hyla versicolor</i>
Eastern milksnake	<i>Lampropeltis triangulum</i>
Green frog	<i>Lithobates clamitans</i>
Pickerel frog	<i>Lithobates palustris</i>

Common Name	Scientific Name
Wood frog	<i>Lithobates sylvaticus</i>
Northern watersnake	<i>Nerodia sipedon</i>
Eastern newt	<i>Notophthalmus viridescens</i>
Smooth greensnake	<i>Opheodrys vernalis</i>
Red-backed salamander	<i>Plethodon cinereus</i>
Spring peeper	<i>Pseudacris crucifer</i>
Dekay's brownsnake	<i>Storeria dekayi</i>
Red-bellied snake	<i>Storeria occipitomaculata</i>
Common gartersnake	<i>Thamnophis sirtalis</i>

Table 2.7 Fish Species Potentially Occurring within the Ball Mountain Lake Federal Fee Boundary

Common Name	Scientific Name
Brown bullhead	<i>Ameiurus nebulosus</i>
White sucker	<i>Catostomus commersoni</i>
Pumpkinseed	<i>Lepomis gibbosus</i>
Common shiner	<i>Luxilus cornutus</i>
Smallmouth bass	<i>Micropterus dolomieu</i>
Golden shiner	<i>Notemigonus crysoleucas</i>
Yellow perch	<i>Perca flavescens</i>
Longnose dace	<i>Rhinichthys cataractae</i>
Brown trout	<i>Salmo trutta</i>
Brook trout	<i>Salvelinus fontinalis</i>
Fallfish	<i>Semotilus corporalis</i>

2.7.2 Vegetative Resources

Ecoregions describe areas with similar ecosystems, through considering factors such as climate, soils, geology, vegetation, and land use (EPA, 2024). Section 2.7.5 describes the ecoregion system and Level III ecoregions at Ball Mountain Lake. The Level IV ecoregions are smaller scale classifications and were used to describe vegetative resources at Ball Mountain Lake. Figure 2.7 captures the EPA Level IV Ecoregion footprint. Ball Mountain Lake is located within the Green Mountains/Berkshire Highlands EPA Level IV ecoregion. Vegetation resources in this ecoregion include northern hardwood forests or mesic red oak-northern hardwood forests, with some evergreen forests. Common hardwood species include: red oak (*Quercus rubra*), sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), yellow birch (*Betula alleghaniensis*), white ash (*Fraxinus americana*), basswood (*Tilia americana*), butternut (*Juglans cinerea*), and sweet birch (*Betula lenta*) (Griffith, et al., 2009).

Vegetative resources in this ecoregion may vary based on landscape position. On mid-slopes and low summits, yellow birch-red spruce (*Picea rubens*) forests may occur. On plateau wetlands, spruce-fir-American larch swamps may occur with red or black (*Picea mariana*) spruce, balsam fir (*Abies balsamea*), American larch (*Larix*

laricina), red maple, and mountain holly (*Ilex mucronata*). At high elevations, subalpine balsam fir-birch forests may occur (Griffith, et al., 2009).

The predominant vegetation community throughout Ball Mountain Lake is sugar maple - American beech - yellow birch hardwood forests. This type of hardwood forest is dominant throughout Vermont. Other hardwood community examples at Ball Mountain Lake include: white pine forests; white pine – northern red oak – white ash forests; aspen forests; and northern red oak forests (USACE, 1982). Ball Mountain Lake includes a state significant natural community: red oak - northern hardwood forest. Refer to Section 2.7.3, below, for a description of this natural community.

2.7.3 Threatened and Endangered Species and Essential Fish Habitat

Federally Listed Species

The U.S. Fish and Wildlife Service (USFWS)'s Information for Planning and Consultation (IPaC) tool was used to identify species protected under the Endangered Species Act, Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act. An IPaC species list was generated for threatened and endangered species listed under the Endangered Species Act (Appendix C). Table 2.8 describes species protected under the Endangered Species Act (USFWS, 2025a). Birds protected under the Migratory Bird Treaty Act are listed as Birds of Conservation Concern (BCC). BCC species are migratory and non-migratory bird species that have the highest conservation priority as identified by USFWS (USFWS, 2021). Table 2.9 describes those protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (USFWS, 2025a).

Table 2.8 Federally Listed Threatened and Endangered Species Potentially Occurring within the Ball Mountain Lake Federal Fee Boundary (USFWS, 2025a)

Common Name	Scientific Name	Federal Status
Monarch butterfly	<i>Danaus plexippus</i>	Proposed Threatened
Northern long-eared bat	<i>Myotis septentrionalis</i>	Endangered
Tricolored bat	<i>Perimyotis subflavus</i>	Proposed Endangered

Table 2.9 Federally Protected Migratory Birds Potentially Occurring at Ball Mountain Lake

Common Name	Scientific Name	Federal Status
Bald eagle	<i>Haliaeetus leucocephalus</i>	Bald and Golden Eagle Protection Act
Bay-breasted warbler	<i>Setophaga castanea</i>	BCC
Bicknell's thrush	<i>Catharus bicknelli</i>	BCC
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	BCC
Bobolink	<i>Dolichonyx oryzivorus</i>	BCC

Common Name	Scientific Name	Federal Status
Canada warbler	<i>Cardellina canadensis</i>	BCC
Cape May warbler	<i>Setophaga tigrina</i>	BCC
Chimney swift	<i>Chaetura pelagica</i>	BCC
Evening grosbeak	<i>Coccothraustes vespertinus</i>	BCC
Olive-sided flycatcher	<i>Contopus cooperi</i>	BCC
Prairie warbler	<i>Setophaga discolor</i>	BCC
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	BCC
Veery	<i>Catharus fuscescens fuscescens</i>	BCC
Wood thrush	<i>Hylocichla mustelina</i>	BCC

State Listed Species

The Vermont Department of Fish & Wildlife (VDFW) maintains the Vermont Natural Heritage Inventory (VNHI) as a comprehensive database of rare species and significant natural communities (VDFW, 2025b). Species and natural communities are assigned a state rank and/or status. Status describes a species' or communities' listing under the Vermont Endangered Species Law (10 V.S.A. Chapter 123). State ranks characterize the rarity or endangerment of the species or habitat within Vermont (VDFW, 2020). The state ranks include:

- S1 - Very rare. At very high risk of extinction or extirpation due to extreme rarity, very steep declines, or other factors;
- S2 – Rare. At high risk of extinction or extirpation due to very restricted range, very few populations, steep declines, or other factors;
- S3 – Uncommon. At moderate risk of extinction or extirpation due to restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors;
- S4 – Common to uncommon. Locally common or widely scattered to uncommon, but not rare; some cause for long-term concern due to declines or other factors; or stable over many decades and not threatened but of restricted distribution or other factors;
- S5 – Common. Widespread and abundant.

The Vermont Agency of Natural Resources (VANR) Natural Resources Atlas was used to review VNHI data on significant natural communities. Two significant natural communities were identified within the Ball Mountain Lake federal fee boundary: Red – Oak Northern Hardwood Forest (S4) and River Cobble Shore habitat (S2) (VANR, 2025). The River Cobble Shore habitat provides habitat for various state-listed species and is found along West River above Ball Mountain Lake and below the dam. The West River also provides habitat for state-listed freshwater mussel species (Attachment A of Appendix B).

Table 2.10 describes the state-listed species potentially occurring within the Ball Mountain Lake federal fee boundary, as well as their state ranks and status (Attachment A of Appendix B; (VANR, 2025)).

Table 2.10 State-Listed Conservation Species Potentially Occurring within the Ball Mountain Lake Federal Fee Boundary

Taxa	Common Name	Scientific Name	State Ranking	State Status
Beetles	Boulder-beach tiger beetle	<i>Cicindela ancocisconensis</i>	S1	-
Freshwater Mussels	Brook floater	<i>Alasmidonta varicosa</i>	S1	Endangered
	Eastern pearlshell	<i>Margaritifera margaritifera</i>	S2	Threatened
	Triangle floater	<i>Alasmidonta undulata</i>	S3	-
	Creeper	<i>Strophitus undulatus</i>	S3	-
Reptiles	Wood turtle	<i>Glyptemys insculpta</i>	S3	-
Plants	Shore sedge	<i>Carex lenticularis</i>	S3	-
	Low sand cherry	<i>Prunus pumila</i> var. <i>depress</i>	S2	-
	Canada burnet	<i>Sanguisorba canadensis</i>	S2	-
	Dwarf bilberry	<i>Vaccinium caespitosum</i>	S2	-

Essential Fish Habitat

The NOAA Fisheries Essential Fish Habitat Mapper (EFH) was used to identify EFH-managed species and Habitat of Particular Concern protected under the Magnuson-Stevens Fishery Conservation and Management Act. EFH is broadly defined as “those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity”. EFH for Atlantic salmon (*Salmo salar*) was identified within the West River; no Habitat of Particular Concern was identified within the Ball Mountain Lake federal fee boundary (NOAA, 2026).

2.7.4 Invasive Species

Executive Order (EO) 13112, as amended by EO 13751, defines an invasive species as a non-native organism whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health. Invasive species can change community structure, composition, and ecosystem processes. Careful management can minimize these negative impacts. Table 2.11 lists the invasive species present at Ball Mountain Lake as provided by Ball Mountain Lake staff.

Various methods are used to manage invasive species by staff and volunteers at the project. These methods of control include:

- Biological: use of other living organisms to suppress invasive species
- Chemical: application of registered pesticides for control of targeted species
- Manual: hand pulling, digging, weed wrenching, cutting

- Mechanical: mechanized removal or control of invasive species including mowing, forestry equipment, chainsaws, aquatic harvesting equipment, and/or the use of traps
- Cultural: education, outreach, and other activities to improve public practices on lands and reduce spread of invasive species and/or manipulation of habitats to increase mortality

Table 2.11 Invasive Species Occurring at Ball Mountain Lake

Common Name	Scientific Name
Norway maple	<i>Acer platanoides</i>
Garlic mustard	<i>Alliaria petiolata</i>
Japanese barberry	<i>Berberis thunbergii</i>
Oriental bittersweet	<i>Celastrus orbiculatus</i>
Autumn olive	<i>Elaeagnus umbellata</i>
Winged <i>Euonymus</i> ; burning bush	<i>Euonymus alatus</i>
Japanese knotweed	<i>Fallopia japonica</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
European gypsy moth	<i>Lymantria dispar</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Glossy buckthorn	<i>Rhamnus frangula</i>
Multiflora rose	<i>Rosa multiflora</i>

2.7.5 Ecological Setting

Ecoregions are used to describe areas with similar ecosystems and in type, quality, and quantity of environmental resources (EPA, 2024). The process of defining ecoregions considers factors such as: climate, soils, geology, vegetation, and land use (Omernik J. M., 1987). Ecoregions use hierarchical classification to describe variation at broad and detailed scales. The Level I and II ecoregions provide a broader description of ecosystems; while the Level III and IV ecoregions provide a more detailed description (Omernik & Griffith, 2014). The Level III ecoregions are used to describe the ecological setting of Ball Mountain Lake. The Level IV ecoregions are used to describe vegetation resources in Section 2.7.2, and are shown in Figure 2.7.

Ball Mountain Lake is a part of the Northern Appalachian and Atlantic Maritime Highlands (Northeastern Highlands) Level III ecoregion. Figure 2.6 shows the EPA's Level III ecoregions at Ball Mountain Lake and surrounding areas. The following information summarizes this ecoregion from the North American Terrestrial Ecoregions – Level III descriptions document (Wiken, Nava, & Griffith, 2011).

The Northeastern Highlands ecoregion is the predominant Level III ecoregion in Vermont and is found throughout most of the northern and mountainous parts of New England. Climate for this ecoregion is described as a severe, mid-latitude humid

continental climate, characterized by warm summers and snowy, cold winters. Natural vegetation types are primarily mixed hardwood and spruce-fir forests. The hydrology includes numerous perennials, high-gradient streams, larger rivers streams, and glacial lakes. Landforms are hills and mountains with narrow valleys. Soils are relatively nutrient poor and are typically Inceptisols, with moderate soil development, or Spodosols with weathered soils and eluviated organic matter. The geology is varied but is predominantly igneous and metamorphic rocks.



Figure 2.6 EPA Level III Ecoregions of Vermont (EPA, 2013a)

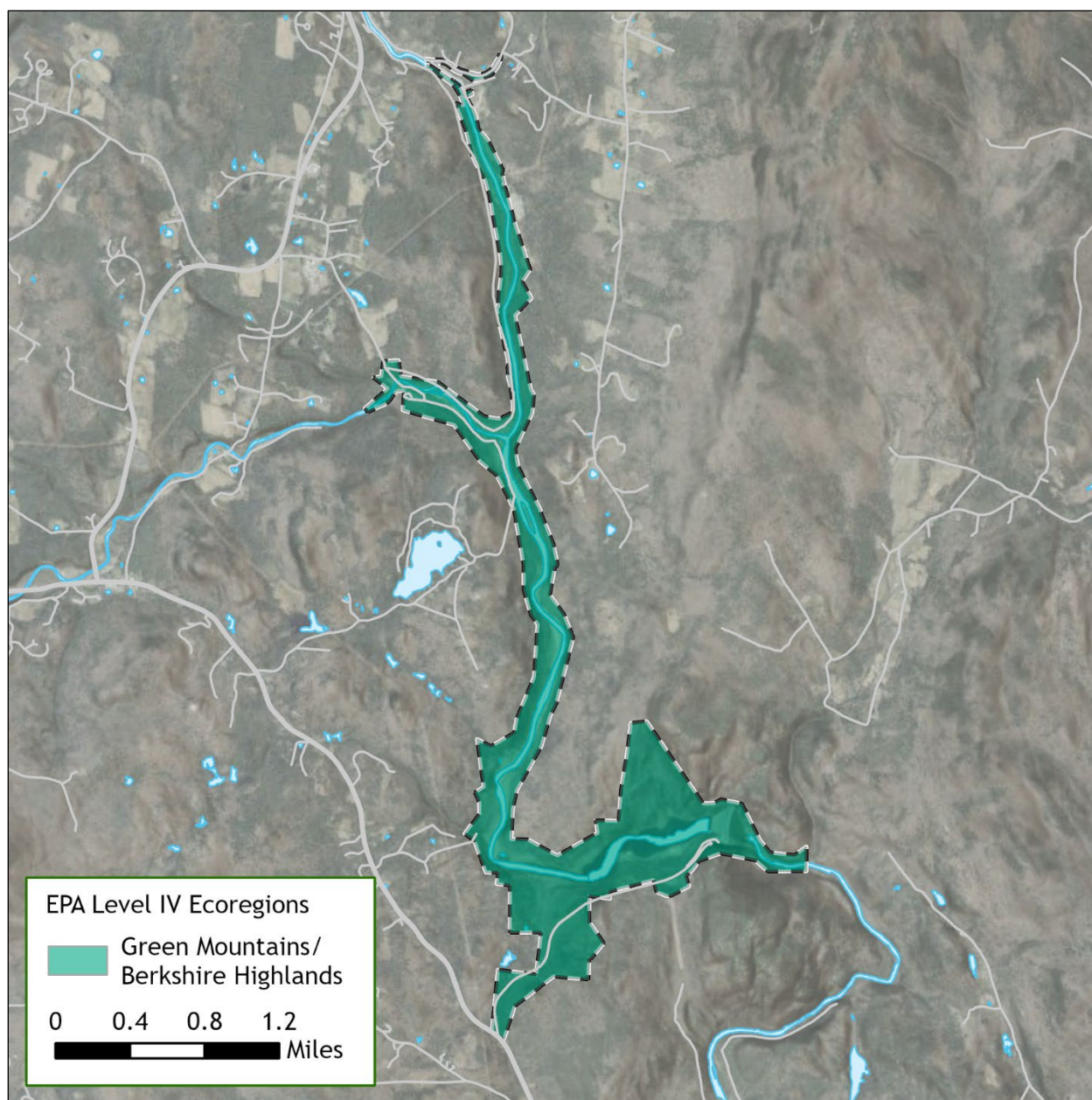


Figure 2.7 EPA Level IV Ecoregion at Ball Mountain Lake (EPA, 2013b)

2.7.6 Wetlands

The USFWS maintains the National Wetlands Inventory (NWI) as a database for wetlands across the United States. Based on the NWI's GIS data, there are an estimated 598 acres of wetlands present within the Ball Mountain Lake federal fee boundary (USFWS, 2025b). Figure 2.8 and Table 2.12 display mapped wetlands and provide wetland acreages according to the Cowardian classification system. There are approximately 246 acres of wetlands present within the boundary of the Ball Mountain Lake project. Table 2.12 summarizes the area coverage per wetland type.

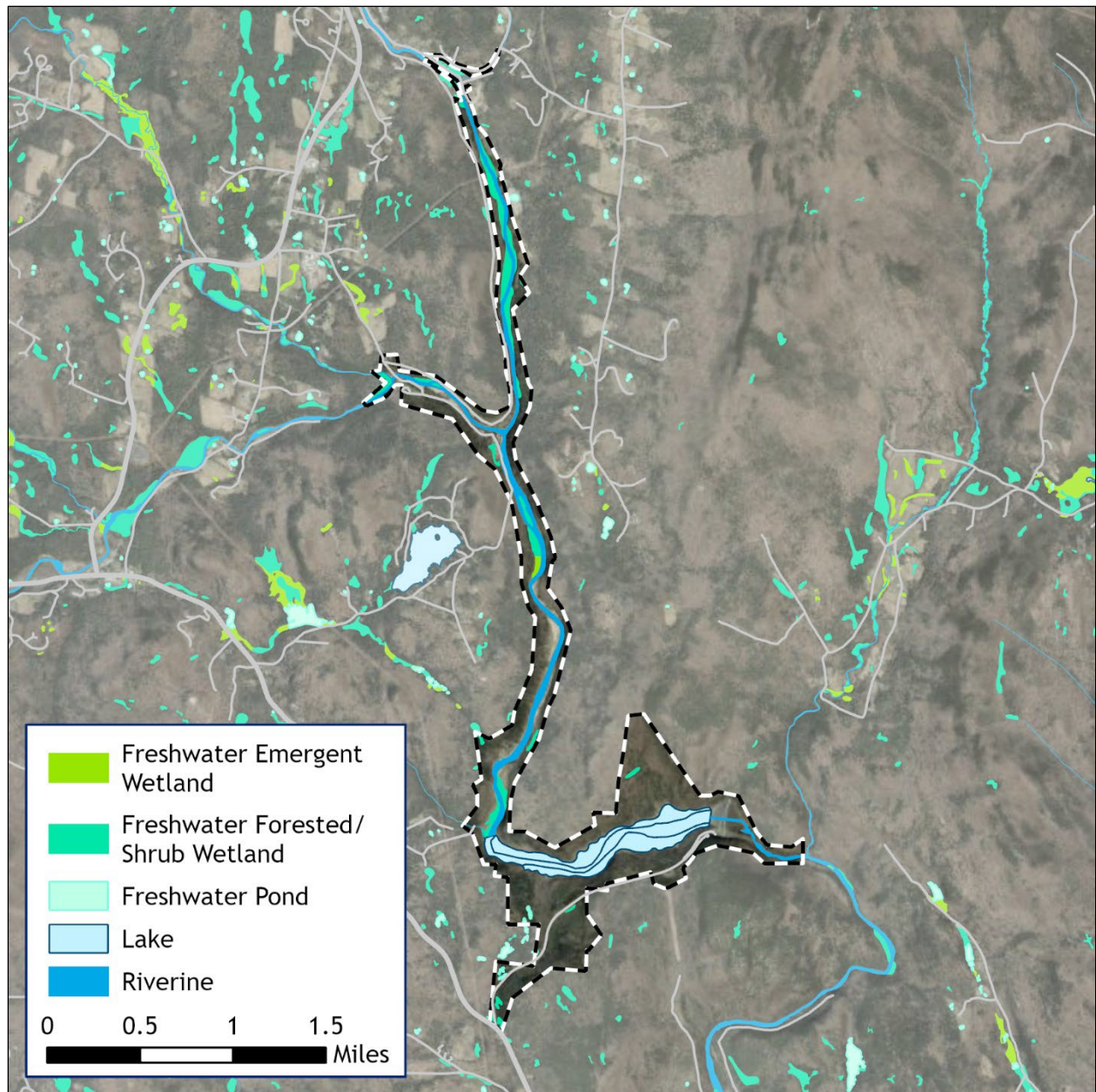


Figure 2.8 Estimated Wetlands within Ball Mountain Lake (USFWS, 2025b)

Table 2.12 Wetlands at Ball Mountain Lake

Wetland Type	Acreage
Freshwater Emergent Wetland	2
Freshwater Forested/Shrub Wetland	49
Freshwater Pond	2

Wetland Type	Acreage
Lake	101
Riverine	92
TOTAL	246

2.8 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

The EPA's EnviroMapper tool reports there are approximately 36 EPA listed facilities in a 5-mile buffered area extending from the Ball Mountain Lake federal fee boundary. These facilities are from: Resource Conservation and Recovery Act sites; Assessment, Cleanup, and Redevelopment Exchange System sites; and Integrated Compliance Information System for Air sites. There are no Superfund, Toxic Release Inventory, or Comprehensive Environmental Response, Compensation, and Liability Act sites within a 5-mile radius (EPA, 2025c). Figure 2.9 shows the EnviroMapper sites found within a 5-mile buffer of the Ball Mountain Lake federal fee boundary.

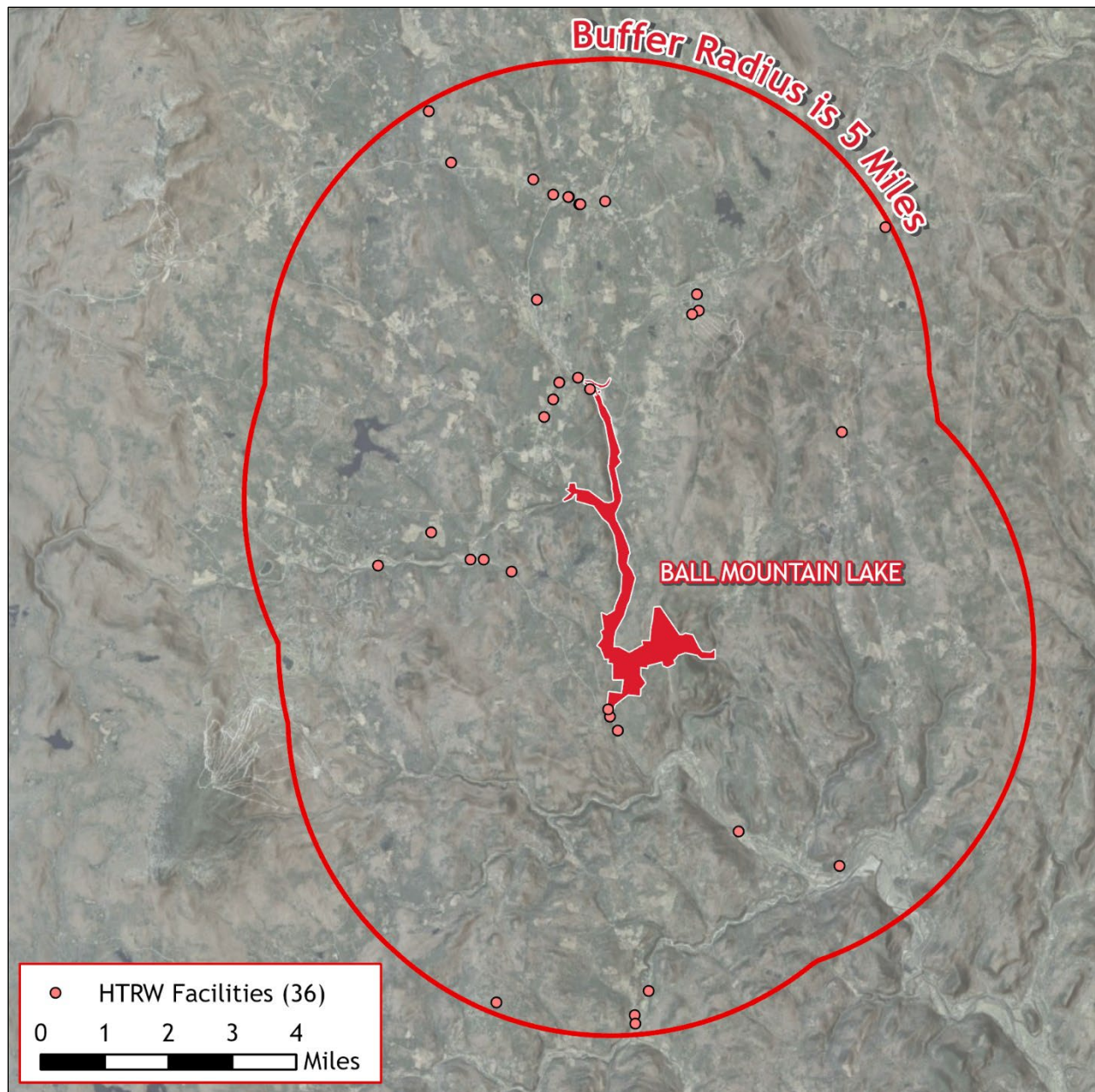


Figure 2.9 EPA EnviroMapper Hazardous, Toxic and/or Radioactive Waste Sites within 5 miles of Ball Mountain Lake (EPA, 2023; EPA, 2025c)

2.9 HEALTH AND SAFETY

Potential safety hazards at Ball Mountain Lake have been identified and protective measures taken as necessary. All access roads, trails, bridges and parking areas have been made available to the visiting public with a hazard free environment in mind. Adequate signs have been posted for the information, direction, safety and convenience of the visiting public. Guard rail and fencing has been installed along the access road to the dam and around the dam, spillway, and gate tower where needed.

Patrols and routine inspections are regularly conducted by USACE Rangers. Cooperative law enforcement agreements and continuing coordination with local police and Vermont State Police will monitor emergency response to visitor medical and health needs, manage traffic control, provide law enforcement assistance, and offer fire protection. USACE also ensures compliance with rules and regulations governing solid waste, wastewater, and potable water management on USACE fee land, including those areas operated by grantees

2.10 AESTHETIC RESOURCES

Ball Mountain Lake has numerous opportunities for excellent scenic views. Some areas are admired for their scenic attractiveness (intrinsic scenic beauty that evokes a positive response), scenic integrity (wholeness of landscape character), and landscape visibility (how many people view the landscape and for what reasons and how long). The overlook area at the dam provides views of project features and a combination of topographic relief, open water areas, and a diversity of vegetation. Panoramic views from the overlook area at the dam also offer sightseers, photographers, picnickers, and hikers pleasing views of Stratton Mountains, Bromley Mountains, and Angel Falls.

Ball Mountain Lake lies in a forest vegetation zone characterized by American beech, yellow birch and sugar maple with commonly associated species of hemlock and white pine. In the cooler mountain areas of the upper watershed, forests consist mainly of the red, white, and black spruces and balsam fir. Many programs are used to benefit the native wildlife species. The installation of bird boxes has created needed nesting sites for wood ducks, tree swallows, black-capped chickadees, and bluebirds. Rangers prune apple trees to improve their health and vigor increasing the amount of food produced for wildlife. Forest stands are managed to maximize benefits to both trees and animals. The management practices of brush hogging are used to maintain important open field habitats.

The project area offers a unique recreational experience to the public by providing a natural unspoiled and highly scenic river valley with a minimum amount of development. Ball Mountain Lake periodically releases water for white water rafting, canoeing, and kayaking in conjunction with the seasonal drawdown of the pool. A majority of the ten miles of the project trails follow the beautiful West River. When open, the Winhall Brook Camping Area provides opportunities for trails, playgrounds, and general camping environment.

2.11 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

Cultural resources preservation and management is an equal and integral part of all resource management at USACE-administered operational projects. The term “cultural resources” is a broad term that includes, but is not limited to, historic and prehistoric archaeological sites, deposits, and features; burials and cemeteries; historic and prehistoric districts comprised of groups of structures or sites; cultural landscapes; built environment resources such as buildings, structures (such as bridges), and objects; traditional cultural properties; and sacred sites. These property types may be listed on the National Register of Historic Places (NRHP) if they meet the criteria specified by the NRHP (36 CFR Part 60), reflecting significance in architecture, history,

archaeology, engineering, and culture. Cultural resources that are identified as eligible for listing in the NRHP are referred to as “historic properties,” regardless of category. A Traditional Cultural Property (TCP) is a property that is eligible for inclusion in the NRHP based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. Ceremonies, hunting practices, plant-gathering, and social practices which are part of a culture’s traditional lifeways, are also cultural resources.

Stewardship of cultural resources on USACE Civil Works water resources projects is an important part of the overall federal responsibility. Numerous laws pertaining to identification, evaluation, and protection of cultural resources, Native American Indian rights, curation and collections management, and the protection of resources from looting and vandalism, establish the importance of cultural resources to our Nation’s heritage. With the passage of these laws, the historical intent of U.S. Congress has been to ensure that the federal government protects cultural resources. Additionally, as stewards of cultural resources and in compliance with federal laws, it is incumbent upon the USACE to consult with the State Historic Preservation Officer (SHPO), Tribal Nations, the Advisory Council on Historic Preservation (ACHP), and other interested stakeholders in the preservation and management of cultural resources.

Guidance is derived from a number of cultural resources laws and regulations, including but not limited to Sections 106 and 110 (54 U.S.C. 306101-306114) of the National Historic Preservation Act (NHPA) of 1966 (as amended); Archaeological Resources Protection Act (ARPA) of 1979; Native American Graves Protection and Repatriation Act (NAGPRA); and 36 CFR Part 79, Curation of Federally Owned and Administered Archeological Collections. Implementing regulations for Section 106 of the NHPA and NAGPRA are 36 CFR Part 800 and 43 CFR Part 10, respectively. All cultural resources laws and regulations should be addressed under the requirements of NEPA, as applicable. USACE summarizes the guidance provided in these laws in ER and EP 1130-2-540.

2.11.1 Cultural Chronology

The cultural history of Vermont spans approximately 12,500 years of human occupation. This history is generally divided into pre-contact (prior to Native American contact with Europeans) and post-contact (after Native American contact with Europeans) frameworks that are further subdivided into more specific time periods based on technological variation, settlement patterns, land use, and subsistence and consist of

Pre-Contact Periods:

- Paleo-Indian Period (10,000 to 7,500BC)
- Early Archaic Period (7500 to 5,800 BC)
- Middle Archaic Period (5,800 to 4,000 BC)
- Late Archaic Period (4,000 to 1000 BC)
- Early Woodland Period (1000 BC to 100 AD)

- Middle Woodland Period (100 to 1,000 AD)
- Late Woodland Period (1,000 to 1600 AD)

Post-Contact Periods:

- Contact and Early Historic (1600 to 1675 AD)
- Colonial (1675 to 1775 AD)
- Republic of Vermont (1776 to 1791 AD)
- Federal (1791 to 1930)
- Early Industrial (1830 to 1870 AD)
- Late Industrial (1870 to 1915 AD)
- Modern (1915 AD to Present)

2.11.2 Long-Term Cultural Resource Objectives

Cultural and environmental formation processes have affected cultural resources within and in proximity to the Ball Mountain project. These formation processes include the displacement of pre-contact archaeological sites by European settlement of the region that included deforestation, agriculture, and the construction of dams, houses, and roads. Archaeological sites are vulnerable to the surface collection of artifacts. Impacts from surface collection are often exacerbated by increased access to site locations. The construction of the project has had the largest impact to cultural resources. The primary ongoing threat to cultural resources within the project area is erosion resulting from surface runoff, inundation, and recreation. Finally, any future activities that have a potential to affect cultural resources must comply with Section 106 and 110 of the NHPA, NAGPRA, and ARPA.

2.12 DEMOGRAPHICS AND ECONOMIC RESOURCES

2.12.1 Area of Interest

Ball Mountain Lake is located in the town of Jamaica, Windham County, Vermont. The area of interest (50-mile radius) for the socio-economic analysis covers portions of four states including Massachusetts, New Hampshire, New York, and Vermont.

- Berkshire County, MA
- Franklin County, MA
- Hampshire County, MA
- Worcester County, MA
- Cheshire County, NH
- Hillsborough County, NH
- Merrimack County, NH
- Sullivan County, NH
- Washington County, NY
- Rensselaer County, NY
- Bennington County, VT
- Rutland County, VT

- Windham County, VT
- Windsor County, VT

2.12.2 Population

The total population in the area of interest in 2023 was estimated to be 2,340,353 (Table 2.13). Approximately 37% of the area of interest's population resides in Worcester County, MA, and 18% in Hillsborough County, NH. The remaining counties in the area of interest each account for less than 7% of the area's population.

Table 2.13 Population Estimates, and Future Population Projections (2010, 2020, 2023)

Geographical Area	2010	2020	2023 Population Estimate	2050 Population Projection
Massachusetts	6,547,629	7,029,917	6,992,395	7,802,759
New Hampshire	1,316,470	1,377,529	1,387,834	1,425,109
New York	19,378,102	20,201,249	19,872,319	20,686,329
Vermont	625,741	643,077	645,254	633,264
Berkshire County, MA	131,219	129,026	128,047	115,981
Franklin County, MA	71,372	71,029	70,922	56,664
Hampshire County, MA	158,080	162,308	156,595	145,840
Worcester County, MA	798,552	862,111	861,664	862,451
Cheshire County, NH	77,117	76,458	76,945	73,805
Hillsborough County, NH	400,721	422,937	424,732	471,369
Merrimack County, NH	146,445	153,808	155,018	168,475
Sullivan County, NH	43,742	43,063	43,529	42,141
Washington County, NY	63,216	61,302	60,883	62,774
Rensselaer County, NY	159,429	161,130	160,341	164,999
Bennington County, VT	37,125	37,347	37,312	36,777
Rutland County, VT	61,642	60,572	60,484	59,648
Windham County, VT	44,513	45,905	45,913	45,205
Windsor County, VT	56,670	57,753	57,968	56,872
Area of Interest Total	2,249,843	2,344,749	2,340,353	2,363,000

Source: Sources: U.S. Census Bureau, (2010), RACE, Decennial Census; U.S. Census Bureau, (2020), RACE, Decennial Census; U.S. Census Bureau, 2018-2023 American Community Survey 5-Year Estimates; UMass Donahue Institute, UMDI-V2024 Massachusetts Population Projections; NH Department of Business and Economic Affairs, State, County, and Municipal Population Projections: 2020-2050; UVA Weldon Cooper Center, Total Populations for the U.S., the 50 States, and the District of Columbia: Census 2020 and Projections 2030-2050

Table 2.13 shows the census population counts of the states and counties relevant to the area of interest for 2010 and 2020. It also has the 2023 population estimate based on the most recent 5-year American Community Survey. 2050 population projections are sourced from county specific data for counties in Massachusetts and New Hampshire. For New York and Vermont county level projections through 2050 were not available to the state level growth or shrinkage was used to project 2050 population. Although the population of the area of interest

decreased slightly from 2020 to 2023 it is expected to have its population grow by 0.8% between 2020 and 2050. This future population growth is largely concentrated in Hillsborough County, NH and Merrimack County, NH and the areas with the most significant population decreases are Berkshire County, MA, Franklin County, MA, and Hampshire County, MA. Windham County, VT, where Ball Mountain Lake is located, is not expected to have a significant change in population before 2050.

The distribution of the population by sex (Table 2.14) is approximately 49.5% male and 50.5% female. Figure 2.10 shows the population by age group for Massachusetts, New Hampshire, New York, Vermont, and the entire area of interest. The area of interest is consistent by age group when compared to the four states. It has relatively fewer 25-to-34-year-olds and relatively more 65-to-74-year-olds.

Table 2.14 Population Estimate By Sex (2023)

Geographical Area	Male	Female
Massachusetts	3,416,765	3,575,630
New Hampshire	692,568	695,266
New York	9,702,417	10,169,902
Vermont	320,321	324,933
Berkshire County, MA	62,835	65,212
Franklin County, MA	34,998	35,924
Hampshire County, MA	73,249	83,346
Worcester County, MA	427,601	434,063
Cheshire County, NH	37,894	39,051
Hillsborough County, NH	212,913	211,819
Merrimack County, NH	77,233	77,785
Sullivan County, NH	21,858	21,671
Washington County, NY	31,286	29,597
Rensselaer County, NY	79,903	80,438
Bennington County, VT	18,131	19,181
Rutland County, VT	30,251	30,233
Windham County, VT	22,727	23,186
Windsor County, VT	28,531	29,437
Area of Interest Total	1,159,410	1,180,943

Source: U.S. Census Bureau, 2018-2023 American Community Survey 5-Year Estimates

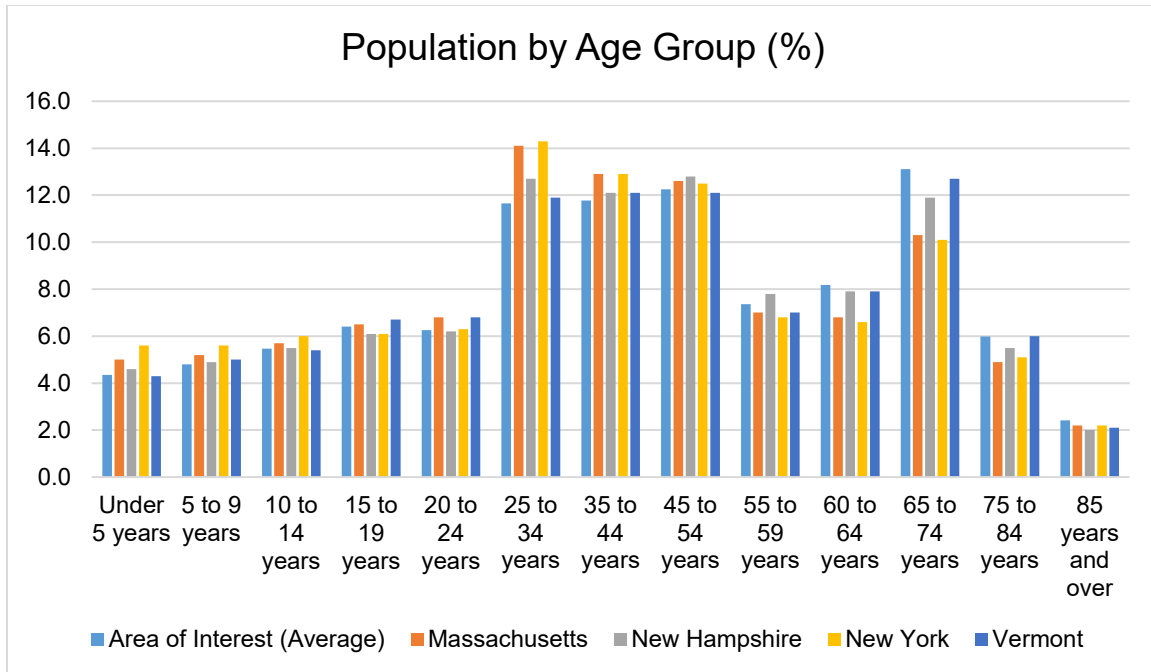


Figure 2.10 Percent of Population by Age Group (2023)

Source: U.S. Census Bureau, 2018-2023 American Community Survey 5-Year Estimates

Population by race and Hispanic Origin is displayed in Table 2.15. The area of interest is approximately 80.4% White, 8.34% Hispanic or Latino, 3.13% Black, 0.07% American Indian or Alaskan Native, 3.6% Asian, 0.02% Native Hawaiian/Other Pacific, 0.6% Some other race, and 4.86% two or more races. By comparison, the population in the state of Massachusetts is 68% White, 13% Hispanic or Latino, 6.5% Black, 0.08% American Indian or Alaskan Native, 7% Asian, 0.03% Native Hawaiian/Other Pacific, 1.15% Some Other Race, and 4.5% Two or More Races. New Hampshire is 87.5% White, 4.5% Hispanic or Latino, 1.38% Black, 0.08% American Indian or Alaskan Native, 2.57% Asian, 0.02% Native Hawaiian/Other Pacific, 0.37% Some Other Race, and 3.52% Two or More Races. New York is 53.4% White, 19.6% Hispanic or Latino, 13.6% Black, 0.19% American Indian or Alaskan Native, 8.83% Asian, 0.03% Native Hawaiian/Other Pacific, 0.9% Some Other Race, and 3.42% Two or More Races. Vermont is 90.6% White, 2.49% Hispanic or Latino, 1.16% Black, 0.14% American Indian or Alaskan Native, 1.63% Asian, 0.02% Native Hawaiian/Other Pacific, 0.34% Some Other Race, and 3.66% Two or More Races.

Table 2.15 Population Estimate by Race/ Hispanic Origin (2023)

Area	White	Hispanic or Latino	Black	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some other race	Two or more races
Massachusetts	4,738,848	904,679	455,145	5,837	491,861	1,964	80,134	313,927
New Hampshire	1,214,784	62,758	19,214	1,078	35,730	254	5,176	48,840
New York	10,608,842	3,898,652	2,708,094	37,212	1,754,957	6,220	178,956	679,386
Vermont	584,421	16,058	7,453	900	10,503	97	2,183	23,639

Area	White	Hispanic or Latino	Black	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some other race	Two or more races
Berkshire County, MA	109,751	7,176	2,945	92	2,305	9	492	5,277
Franklin County, MA	62,358	3,691	933	21	1,329	9	386	2,195
Hampshire County, MA	127,318	11,259	3,449	83	7,826	101	501	6,058
Worcester County, MA	618,267	114,759	40,024	711	44,647	213	8,563	34,480
Cheshire County, NH	70,705	1,904	568	77	532	10	151	2,998
Hillsborough County, NH	343,814	35,041	9,811	264	17,941	35	1,781	16,045
Merrimack County, NH	140,450	4,083	2,314	196	2,508	35	315	5,117
Sullivan County, NH	39,951	871	357	7	238	9	121	1,975
Washington County, NY	54,541	1,790	1,415	44	376	20	593	2,104
Rensselaer County, NY	127,997	9,539	10,048	73	4,962	11	665	7,046
Bennington County, VT	34,163	1,023	380	33	354	4	139	1,216
Rutland County, VT	56,412	1,279	375	2	333	0	49	2,034
Windham County, VT	41,617	1,383	372	30	569	0	107	1,835
Windsor County, VT	53,759	1,294	310	47	606	0	63	1,889
Area of Interest Total	1,881,103	195,092	73,301	1,680	84,526	456	13,926	90,269

Source: U.S. Census Bureau, 2018-2023 American Community Survey 5-Year Estimates

2.12.3 Education and Employment

Table 2.16 displays the highest level of education attained by the population ages 25 and over. In the area of interest, 2.6% of the population have less than a 9th grade education; another 4.7% have between a 9th and 12th grade education; 27.2% have at least a high school diploma or equivalent; 16.8% have some college education; 9.5% have an associate degree; 22.5% have a bachelor's degree; and 16.6% have a graduate or professional degree.

In Massachusetts, 4.2% of the population have less than a 9th grade education; another 4.4% have between a 9th and 12th grade education; 22.8% have at least a high school diploma or equivalent; 14.4% have some college education; 7.5% have an associate degree; 25.3% have a bachelor's degree; and 21.4% have a graduate or professional degree.

In New Hampshire, 1.9% of the population have less than a 9th grade education; another 4.1% have between a 9th and 12th grade education; 27% have at least a high

school diploma or equivalent; 17.3% have some college education; 10% have an associate degree; 24.1% have a bachelor's degree; and 15.7% have a graduate or professional degree.

In New York, 6% of the population have less than a 9th grade education; another 6.2% have between a 9th and 12th grade education; 24.6% have at least a high school diploma or equivalent; 14.9% have some college education; 8.9% have an associate degree; 22% have a bachelor's degree; and 17.5% have a graduate or professional degree.

In Vermont, 1.7% of the population have less than a 9th grade education; another 3.6% have between a 9th and 12th grade education; 27.3% have at least a high school diploma or equivalent; 16.1% have some college education; 8.5% have an associate degree; 24.7% have a bachelor's degree; and 18% have a graduate or professional degree.

Table 2.16 Population Estimate by Highest Level of Educational Attainment, Population 25 Years of Age and Older (2023)

Area	Population 25 years and over	Less than 9th grade	9th to 12th grade, no diploma	High school graduate (includes equivalency)	Some college, no degree	Associate's degree	Bachelor's degree	Graduate or professional degree
Massachusetts	4,945,630	209,811	215,398	1,129,802	712,343	372,377	1,249,640	1,056,259
New Hampshire	1,009,222	18,815	41,182	272,558	174,285	100,544	243,501	158,337
New York	13,996,138	836,124	862,413	3,437,438	2,081,783	1,242,877	3,083,769	2,451,734
Vermont	462,996	7,970	17,356	126,179	74,580	39,542	114,217	83,152
Berkshire County, MA	95,763	1,749	4,288	28,052	17,045	7,990	19,480	17,159
Franklin County, MA	54,162	905	2,387	14,715	8,799	5,528	11,576	10,252
Hampshire County, MA	99,992	1,828	2,687	20,363	15,162	8,836	24,534	26,582
Worcester County, MA	602,409	21,131	31,218	159,762	101,817	53,387	135,457	99,637
Cheshire County, NH	55,245	928	2,393	17,325	9,996	5,093	11,867	7,643
Hillsborough County, NH	304,990	7,973	13,420	78,060	52,335	29,314	77,518	46,370
Merrimack County, NH	112,062	1,903	5,140	31,608	18,571	12,167	24,877	17,796
Sullivan County, NH	32,858	889	2,021	12,160	4,580	3,181	6,261	3,766
Washington County, NY	45,248	1,303	3,079	18,041	7,968	5,251	5,649	3,957
Rensselaer County, NY	113,425	3,086	5,166	28,882	18,672	15,343	24,375	17,901
Bennington County, VT	26,939	475	1,102	7,298	4,686	2,290	5,782	5,306
Rutland County, VT	45,064	703	2,123	14,826	7,860	4,440	9,081	6,031
Windham County, VT	34,190	290	1,482	9,767	5,853	2,317	7,673	6,808
Windsor County, VT	43,890	690	1,550	12,446	7,019	3,790	10,840	7,555
Area of Interest	1,666,237	43,853	78,056	453,305	280,363	158,927	374,970	276,763

Source: U.S. Census Bureau, 2018-2023 American Community Survey 5-Year Estimates

Employment by sector is presented in Figure 2.11 and Table 2.17. Figure 2.11 shows that the largest percentage of the area of interest is employed in the educational services, and health care and social assistance sector at 27.6%. 11.5% of the population works in Professional, scientific, and management, and administrative and waste management services, 11.5% work in Manufacturing, 11.4% work in Retail trade, 7.5% work in Arts, entertainment, and recreation, and accommodation and food services, 7% work in Construction, 5.8% work in Finance and insurance, and real estate and rental and leasing, 4.4% work in Other services excluding public administration, 4.3% work in public administration, and 4.3% work in Transportation, warehousing, and utilities. The remainder of the employment sectors each comprise less than 3%% of the area of interest’s labor force.

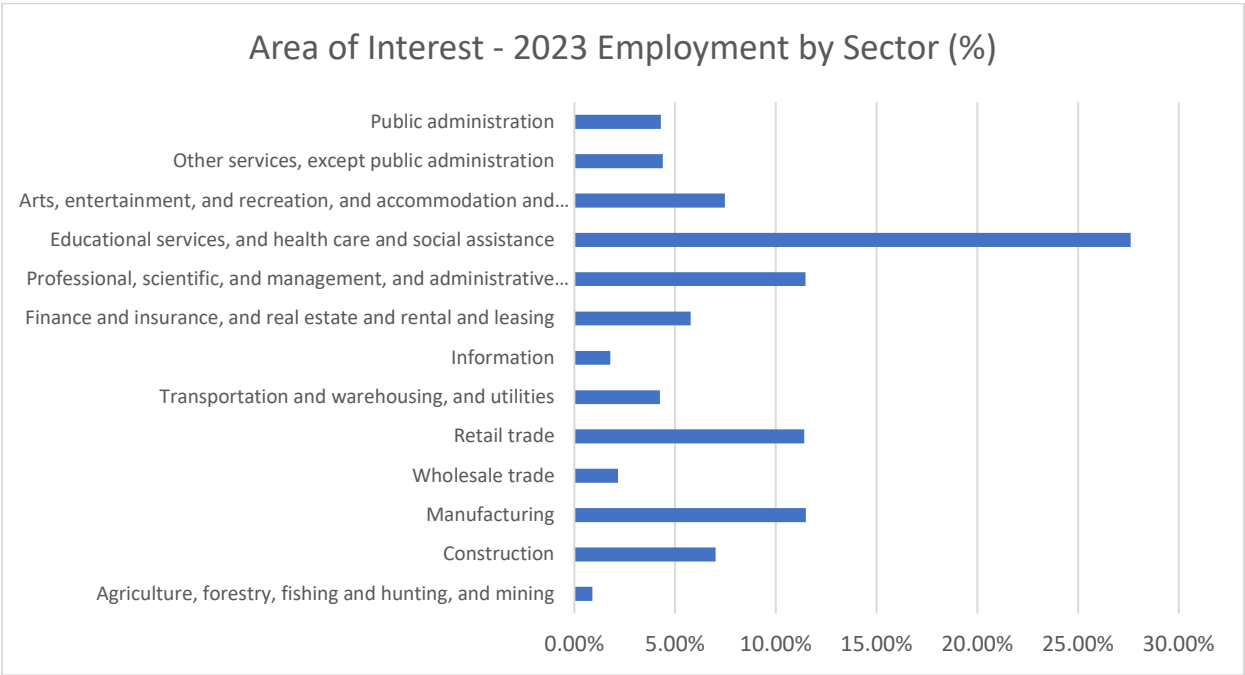


Figure 2.11 Area of Interest Employment by Sector (2023)

Source: U.S. Census Bureau, 2018-2023 American Community Survey 5-year Estimates

Table 2.17 Annual Average Employment by Sector (2023)

Employment Sector	Massachusetts	New Hampshire	New York	Vermont	Berkshire County, MA	Franklin County, MA	Hampshire County, MA	Worcester County, MA	Cheshire County, NH
Civilian employed population 16 years and over	3,687,020	745,100	9,568,411	337,258	63,154	35,565	79,837	443,268	39,357
Agriculture, forestry, fishing and hunting, and mining	16,034	5,444	52,954	8,700	556	912	565	2,351	496
Construction	224,881	53,231	549,110	26,223	3,942	2,760	3,541	30,983	2,937
Manufacturing	331,446	95,347	554,587	34,263	4,973	3,916	6,245	51,407	5,543
Wholesale trade	69,760	17,518	187,705	5,597	985	662	1,268	9,373	1,765
Retail trade	361,140	88,948	924,784	37,341	6,956	3,643	7,908	49,636	5,307
Transportation and warehousing, and utilities	155,398	29,972	547,156	10,848	2,426	1,394	2,871	20,468	1,720
Information	75,547	14,702	265,249	5,848	1,231	790	1,472	6,668	660
Finance and insurance, and real estate and rental and leasing	269,181	48,464	769,593	16,399	3,451	1,366	3,856	27,106	2,296
Professional, scientific, and management, and administrative and waste management services	573,593	90,017	1,234,322	32,756	6,652	3,049	7,606	54,513	2,778
Educational services, and health care and social assistance	1,030,165	181,955	2,790,946	96,388	20,345	11,564	30,309	123,991	10,464
Arts, entertainment, and recreation, and accommodation and food services	278,268	58,340	796,182	30,810	5,822	2,618	7,221	30,603	2,412
Other services, except public administration	157,833	31,389	440,780	15,290	3,306	1,576	3,791	19,573	1,439
Public administration	143,774	29,773	455,043	16,795	2,509	1,315	3,184	16,596	1,540

Source: U.S. Census Bureau, 2018-2023 American Community Survey 5-Year Estimates

Table 2.16 Annual Average Employment by Sector (2023), Continued

Employment Sector	Hillsborough County, NH	Merrimack County, NH	Sullivan County, NH	Washington County, NY	Rensselaer County, NY	Bennington County, VT	Rutland County, VT	Windham County, VT	Windsor County, VT	Area of Interest
Civilian employed population 16 years and over	239,049	81,079	20,877	28,381	80,526	17,930	28,696	23,444	28,815	1,209,978
Agriculture, forestry, fishing and hunting, and mining	961	800	284	960	536	295	583	652	824	10,775
Construction	17,547	6,136	1,319	2,368	5,340	1,288	2,397	2,237	2,081	84,876
Manufacturing	34,715	7,942	2,929	3,715	7,907	1,825	3,015	2,215	2,674	139,021
Wholesale trade	5,154	2,618	562	451	1,376	206	596	496	596	26,108
Retail trade	29,517	9,885	3,201	3,815	6,439	2,794	3,703	2,408	2,789	138,001
Transportation and warehousing, and utilities	10,810	2,695	659	1,108	4,106	608	1,087	728	693	51,373
Information	5,318	1,760	624	334	1,130	313	332	422	586	21,640
Finance and insurance, and real estate and rental and leasing	15,851	4,408	919	1,164	4,919	763	901	1,393	1,445	69,838
Professional, scientific, and management, and administrative and waste management services	31,914	9,102	1,803	2,569	9,431	1,660	2,773	2,150	2,877	138,877
Educational services, and health care and social assistance	54,732	20,104	6,001	6,423	21,779	5,239	8,055	6,483	8,640	334,129
Arts, entertainment, and recreation, and accommodation and food services	16,153	6,076	1,325	2,281	5,717	1,697	2,937	2,312	3,230	90,404
Other services, except public administration	9,421	4,069	752	1,315	3,385	671	1,288	1,223	1,230	53,039
Public administration	6,956	5,484	499	1,878	8,461	571	1,029	725	1,150	51,897

Source: U.S. Census Bureau, 2018-2023 American Community Survey 5-Year Estimates

A summary of the civilian labor force in the area of interest is displayed in Table 2.18. In 2023, the area of interest had an unemployment rate of 4.4%. This is lower than the unemployment rates of New York (6.2%) and Massachusetts (5.1%) and higher than that of Vermont (3.7%) and New Hampshire (3.4%).

Table 2.18 Labor Force, Employment and Unemployment Rates, Annual Averages

Geographic Area	Civilian Labor Force	Number Employed	Number Unemployed	Unemployment Rate %
Massachusetts	3,886,902	3,687,020	199,882	5.10%
New Hampshire	771,014	745,100	25,914	3.40%
New York	10,200,538	9,568,411	632,127	6.20%
Vermont	350,073	337,258	12,815	3.70%
Berkshire County, MA	66,934	63,154	3,780	5.60%
Franklin County, MA	37,931	35,565	2,366	6.20%
Hampshire County, MA	84,102	79,837	4,265	5.10%
Worcester County, MA	468,291	443,268	25,023	5.30%
Cheshire County, NH	40,682	39,357	1,325	3.30%
Hillsborough County, NH	247,287	239,049	8,238	3.30%
Merrimack County, NH	83,671	81,079	2,592	3.10%
Sullivan County, NH	21,364	20,877	487	2.30%
Washington County, NY	29,998	28,381	1,617	5.40%
Rensselaer County, NY	85,325	80,526	4,799	5.60%
Bennington County, VT	18,708	17,930	778	4.20%
Rutland County, VT	29,931	28,696	1,235	4.10%
Windham County, VT	24,496	23,444	1,052	4.30%
Windsor County, VT	29,956	28,815	1,141	3.80%
Area of Interest	1,268,676	1,209,978	58,698	4.40%

Source: U.S. Census Bureau, 2018-2023 American Community Survey 5-Year (Averages)

2.12.4 Households, Income, and Poverty

Table 2.19 displays the number of households and average household sizes in the state and area of interest. There were approximately 932,937 households in the area of interest with an average household size of 2.36.

Table 2.19 Number of Households and Average Household Size (2023)

Geographic Area	Total Households	Average Household Size
Massachusetts	2,762,070	2.45
New Hampshire	551,186	2.44
New York	7,668,956	2.51
Vermont	269,466	2.30
Berkshire County, MA	56,517	2.16
Franklin County, MA	31,498	2.20

Geographic Area	Total Households	Average Household Size
Hampshire County, MA	61,770	2.18
Worcester County, MA	333,273	2.50
Cheshire County, NH	30,519	2.39
Hillsborough County, NH	167,732	2.48
Merrimack County, NH	60,445	2.46
Sullivan County, NH	16,079	2.66
Washington County, NY	24,254	2.40
Rensselaer County, NY	66,233	2.32
Bennington County, VT	14,636	2.47
Rutland County, VT	25,448	2.30
Windham County, VT	19,660	2.24
Windsor County, VT	24,873	2.29
Area of Interest	932,937	2.36

Source: U.S. Census Bureau, 2018-2023 American Community Survey 5-Year Estimates

The median household incomes in the area of interest range from \$64,778 in Rutland County, VT to \$100,436 in Hillsborough County, NH in 2023, as displayed in Table 2.20. The average median household income of the area's counties was \$70,640. Per capita income in the area of interest was \$44,067 in 2023, lower than the per capita income of the commonwealth of Massachusetts (\$56,284), New Hampshire (\$50,867), New York (\$49,520), and Vermont (\$44,365).

Table 2.20 Median and Per Capita Income (2023)

Geographic Area	Median Household Income (All)	Per Capita Income
Massachusetts	\$101,341	\$56,284
New Hampshire	\$95,628	\$50,867
New York	\$84,578	\$49,520
Vermont	\$78,024	\$44,365
Berkshire County, MA	\$72,565	\$47,668
Franklin County, MA	\$72,584	\$41,366
Hampshire County, MA	\$86,391	\$45,006
Worcester County, MA	\$93,561	\$47,780
Cheshire County, NH	\$81,001	\$41,683
Hillsborough County, NH	\$100,436	\$52,243
Merrimack County, NH	\$93,944	\$47,056
Sullivan County, NH	\$75,929	\$41,921
Washington County, NY	\$72,342	\$35,496
Rensselaer County, NY	\$86,663	\$45,113
Bennington County, VT	\$71,494	\$43,214
Rutland County, VT	\$64,778	\$38,902
Windham County, VT	\$68,021	\$42,142

Geographic Area	Median Household Income (All)	Per Capita Income
Windsor County, VT	\$75,247	\$47,344
Area of Interest	\$79,640	\$44,067

Source: U.S. Census Bureau, 2018-2023 American Community Survey 5-Year Estimates

Table 2.21 displays the percentage of persons and families whose incomes fell below the poverty level in the past twelve months as of 2023. Within the area of interest, Franklin County, MA had the greatest share of people with incomes below the poverty level at 12.2%, followed by Rutland County, VT and Windham County, VT with 12%. In terms of families below the poverty level, Merrimack County, NH has the lowest percentage with 3.7% and Rensselaer County, NY has the highest with 8%. In Comparison, New Hampshire has the lowest families below the poverty line with 4.4%, while New York has the highest with 9.8%.

Table 2.21 Percent of Families and People Whose Income in the Past 12 Months is Below the Poverty Level (2023)

Geographic Area	All Families	All People
Massachusetts	6.60%	10.00%
New Hampshire	4.40%	7.20%
New York	9.80%	13.70%
Vermont	5.70%	10.30%
Berkshire County, MA	7.00%	11.00%
Franklin County, MA	7.50%	12.20%
Hampshire County, MA	4.80%	10.90%
Worcester County, MA	7.00%	10.30%
Cheshire County, NH	5.30%	8.90%
Hillsborough County, NH	4.10%	6.50%
Merrimack County, NH	3.70%	7.10%
Sullivan County, NH	7.00%	10.80%
Washington County, NY	7.50%	10.80%
Rensselaer County, NY	8.00%	11.80%
Bennington County, VT	6.70%	11.40%
Rutland County, VT	7.20%	12.00%
Windham County, VT	6.00%	12.00%
Windsor County, VT	4.40%	8.70%
Area of Interest	6.16%	10.31%

Source: U.S. Census Bureau, 2018-2023 American Community Survey 5-Year Estimates

2.13 RECREATION FACILITIES, ACTIVITIES, AND NEEDS

2.13.1 Visitation Profile

Ball Mountain Lake represents an important recreational resource in southern Vermont and is readily accessible to both Vermont residents and out-of-state visitors including the more heavily populated metropolitan areas of Massachusetts and Connecticut. Visitors are a diverse group that includes residents of the immediate area, hunters, fishermen, trail users, and day users who picnic, canoe, kayak, observe wildlife, and sightsee. At Ball Mountain Lake, USACE maintains traffic counters at locations where the majority of visitation occurs. These locations generally include developed park areas and minor access points.

Table 2.22 provides total visitation and visitations of the Recreation Area and Campgrounds by year for FY2019-2023. Visitation numbers are impacted by several factors including counting methodology, flooding, drought, COVID-19, and other environmental factors. Overall visitation hit a peak in 2022 with 67,048 total visits but followed a decrease in 2023 with 48,030 total visits.

Table 2.22 Ball Mountain Lake (BML) Total Visitation FY2019-2023

	2019	2020	2021	2022	2023
BML Recreation Area	16,929	18,959	16,735	15,925	17,256
Winhall Brook Camping Area	41,967	34,756	50,015	51,123	30,774 ¹
BML Total	58,896	53,715	66,750	67,048	48,030

Source: USACE VERS (Visitation Estimation & Reporting System, 2019-2023) (USACE, 2019-2023)

Area of Interest

The visitation market area, or area of interest, is the area from which the majority of visitors to the lake originate. The study team determined the majority of visitors travel from a 50-mile radius based on visitation records for Ball Mountain Lake.

2.13.2 Recreation Areas and Facilities

Recreation at Ball Mountain Lake is managed by the USACE. All project lands at Ball Mountain Lake are available to the public for recreation use although certain areas have been developed primarily for restricted types of activities. A variety of existing facilities serve such interests as camping, hunting, white water canoeing, fishing, snowmobiling, picnicking, sightseeing, and kayaking. The developed recreational facilities include a contact station, water and electric campsites, non-water and electric sites, and lean-tos, comfort stations, dishwashing stations, dump stations, picnic tables, and a picnic shelter.

The Ball Mountain Lake Recreation Area consists of property near the dam and is close to a scenic overlook. The Winhall Brook Camping Area has camping areas

¹ The 2023 decrease in visitation at BML Campground was due to the closure of the campground as a result of the July 2023 flooding.

open from mid-May through mid-October, and during the winter months the area is groomed for snowmobiling, cross-country skiing, and snow showing. Both areas have access to the West River Trail (USACE, 2024).

Of great importance to the lake's area of interest are the existing and future recreational opportunities. As shown in Table 2.23, there is no lodging, boat ramps, marina, fishing facilities, and swimming areas at Ball Mountain Lake. Each recreation area is more specifically described in Chapter 5.

Table 2.23 Recreation Facilities at Ball Mountain Lake

Recreation Area	Managed	Camping	Showers	Picnic	Playground	Trails
Ball Mountain Dam Recreation Area	U			A		M
Ball Mountain Rt 30 Access	U					CC, M
Overlook Scenic Viewing Area	U			A		M
Winhall Brook Camping Area \$	U	X	X	G, GS	X	CC, M

Source: USACE Corps Lakes website (USACE, n.d.)

U	USACE Managed	<u>Picnic</u>		<u>Trails</u>	
X	Exists at Lake	A	Picnic Area	M	Multipurpose Trails
\$	USACE Fees Collected	G	Group Picnic	CC	Cross Country Skiing Trails
		GS	Group Picnic Shelter		



Photo 2.1 Mountain Bike Riding at Ball Mountain

(Source: USACE)



Photo 2.2 White Water Canoe Rafting

(Source: USACE)

Fishing and Hunting

Hunting and fishing are permitted at Ball Mountain Lake in accordance with Federal and Vermont Fish and Wildlife laws and posted regulation. Trapping and blind/stand permits are required. Brook trout are stocked periodically in the West River by Vermont Fish and Wildlife.

Day Use and Picnicking

Opportunities for outdoor family fun and recreation at the park areas surrounding Ball Mountain Lake include non-motorized boating, picnicking, and sightseeing. There is no fee to use the recreation areas.

Boating

Ball Mountain lake offers non-motorized boating opportunities such as kayaking and canoeing. Whitewater rafting is a popular activity at Ball Mountain Lake. Whitewater rafters enjoy the approximately 8-mile run between the Ball Mountain Dam to the backwater of Townshend Lake.

Trails

Ball Mountain Lake provides visitors the opportunity to access multiuse trails at several locations at the project. Motorized vehicles are not allowed on any trails at Ball Mountain Lake.

West River Trail

There are two trail heads at Ball Mountain Lake Recreation Area giving direct access to the West River Trail. USACE has a partnership with The Friends of the West River Trail, a non-profit organization formed in 1991 to reclaim, develop and maintain the West River Trail. The West River Trail follows the old West River railroad bed for 36 miles connecting the towns of Brattleboro, Dummerston, Newfane, Townshend, Jamaica, and South Londonderry. The non-profit group hopes to continue to develop and maintain a publicly accessible system of trails along the West River railroad bed for educational and recreational purposes.

Trail heads for the West River Trail are located on the north and south side of the campground. Parking is available at each trail head. The south side trail head follows the West River to Ball Mountain Lake and is 3.2 miles long. The north side trail head follows the West River to South Londonderry and loops back to the campground totaling 5.6 miles. The West River Trail is multipurpose for hikers and bikers and in the winter, it is used locally by snowmobiles and snowshoers.



Photo 2.3 Friends of the West River Trail

Source: (Friends of the West River Trail, n.d.)



Photo 2.4 West River Trail Head

Source: (Getting Lost Together , 2021)

Winhall Woods Walk

The Winhall Woods Walk runs through the Winhall Brook Camping Area and is approximately a half mile long.



Photo 2.5 Winhall Woods Walk Trail Head

Source: (Getting Lost Together , 2021)

2.13.3 Recreation Analysis

The 2024 Vermont Statewide Comprehensive Outdoor Recreation Plan (SCORP): *Move Forward Together Vermont* was prepared by the Department of Forests, Parks, and Recreation (FPR) and the Vermont Outdoor Recreation Economic Collaborative (VOREC) along with many public and private partners across the state (FPR and VOREC, 2024). The SCORP serves to address emerging issues in Vermont outdoor recreation and set priority areas to serve as the foundation for action over the next five years. The vision is to “Foster Healthy and Vibrant Communities through Outdoor Recreation” with the following three themes:

- **Stewardship** – emphasize the importance of supporting Vermont’s physical recreational assets as well as the organizations and people who manage them.
- **Wellness** – focus on supporting the people who recreate.
- **Economic Development** – address outdoor recreation as a tool to create a sustainable and vibrant future.

To implement these themes, the SCORP identified a total of 19 priority actions.

In order to gain an understanding of statewide participation trends, data was collected from an outdoor recreation user survey distributed in Spring 2024. The Ball Mountain Master Plan highlights the Representative Panel Survey to describe results from a statistically representative sample of Vermonters. Some highlights of the participation trends include:

- 92.8% of Vermont residents have engaged in outdoor recreation with 58.2% recreated at least once a week.
- Activities like walking (87%), swimming (54%), hiking (54%), gardening (40%), and playground activities (38%) were the top activities by Vermonters.
- Vermonters sought outdoor experiences to enhance their mental well-being (3.92), relax and recharge (3.92), and find peace in natural surroundings (3.92). Results are based on a scale of one to five, with one being 'not at all important' to five being 'extremely important'.
- Regarding barriers to outdoor recreation, Vermonters were concerned about the high cost of gear, equipment, and/ or appropriate clothing (3.61), engaging in competing interests during free time (3.15), worries about sanitation and lack of facilities (3.11) and high entrance fees (3.05). Results are based on a scale of one to five, with one being 'strongly disagree' and five being 'strongly agree'.
- The top camping-related investment priorities were state parks and public developed campgrounds (3.22), cabins or yurts (3.1), and drive-in tents (3.04). Results are based on a scale of one to five, with one being 'very low priority' and five being 'very high priority'.
- The top program investment priorities were seniors' activity centers (3.4), community gardens (3.38), and outdoor sports programs for youth (3.35). Results are based on a scale of one to five, with one being 'very low priority' and five being 'very high priority'.
- The top health and wellness investments were programs that help Senior Vermonters to stay active outdoors (3.71), outdoor recreation projects that serve low-income and historically underserved populations (3.7), and program that address mental and physical health needs through outdoor activities (3.65). Results are based on a scale of one to five, with one being 'very low priority' and five being 'very high priority'.

Although the following results do not represent a statistically representative sample of any population group, it can yield meaningful insights into the similarities and differences of Vermonters.

- 65% of survey responders with a disability themselves or having someone in the household with a disability say that the disability hampers their ability, or ability of others in the household to recreate outdoors in Vermont.
- From those, 40% say that some accommodation or assistance could be offered to help improve outdoor recreational experiences.
- Younger generations tended to prioritize investments in outdoor events and concerts while the older generation prioritized activity centers and program specific to seniors.
- Rural respondents had a top constraint to avoid places where dogs are off-leash and a top constraint for urban/ suburban respondents was not having time to recreate due to work.

- Lower income respondents, or less than \$40,000 household income, were constrained by cost of gear/ equipment, use/ entrance fees, and overall trip costs for outdoor recreation.

USACE recognizes the importance of recreation to the local community and the State of Vermont, and the importance that USACE managed land can play in providing access. Information from the SCORP including the survey results and the statewide goals and objectives were considered when developing the goals and objectives for this Master Plan. See Chapter 3 for the resource goals and objectives developed for the Ball Mountain Lake Master Plan.

2.13.4 Recreation Carrying Capacity

No recreation carrying capacity studies have been conducted at Ball Mountain Lake. Presently, the USACE manages recreation areas using historic visitation data combined with best professional judgment to address recreation areas, including the water surface, considered to be overcrowded, overused, underused, or well balanced. Compared to other USACE NAE Projects of similar size, Ball Mountain Lake experiences average visitation. This trend is expected to continue based on regional population projections. The USACE will apply appropriate best management practices including site management, regulating visitor behavior, and modifying visitor behavior as needed to adapt to changes in usage.

2.14 REAL ESTATE

A total of approximately 965 acres of fee simple land and 262 acres of easements were acquired for the Ball Mountain Lake project. Easement acres reflect all easements on the project and not solely flowage easements. These are the official acres and may differ from those in other parts of this plan, which are for planning purposes only, due to improved measurement technology, erosion, and sedimentation.

2.14.1 Outgrants

The term “outgrant” is a broad term used by the USACE to describe a variety of real estate instruments wherein an interest in real property has been conveyed by the USACE to another party. Outgrants at Ball Mountain Lake include leases, licenses, easements, permits, and others which include the following:

- 2 Easements
- 1 Licenses
- 0 Leases
- 0 Permits

The demand for real estate outgrants at Ball Mountain Lake ranks fairly low among all USACE lake projects in terms of the total number and complexity of real estate outgrants. Management actions related to outgrants include routine inspections to ensure compliance with the terms of the outgrant, public safety requirements, and environmental compliance such as proper solid waste disposal and storage of pesticides. Additional actions include review of maintenance and construction proposals made by grantees. Easements, licenses, and leases are generally inspected annually

for overall compliance. The management of outgrants is a major responsibility shared by the Operations and Real Estate Divisions of the New England District.

2.14.2 Guidelines for Property Adjacent to Public Land

It is the policy of the USACE to manage the natural, cultural, and developed resources of Ball Mountain Lake to provide the public with safe and healthful recreational opportunities, while protecting and enhancing those resources. While private exclusive use of public land is not permitted, property owners adjacent to public lands do have all the same rights and privileges as any other citizen on their own property. Therefore, the information contained in these guidelines is designed to acquaint the adjoining landowner and other interested persons with the types of property involved in the management of government land at Ball Mountain Lake.

2.14.3 Trespass and Encroachment

Government property is monitored by USACE personnel to identify and correct instances of unauthorized use, including trespasses and encroachments. The term “trespass” includes unauthorized transient use and occupancy, such as mowing, tree cutting and removal, livestock grazing, cultivation and harvesting crops, and any other alteration to Government property done without the USACE approval. Unauthorized trespasses may result in a Title 36 citation requiring violators to appear in Federal Magistrate Court, which could subject the violator to fines or imprisonment (See 36 C.F.R. Part 327 Rules and Regulations Governing Public Use of Water Resources Development Projects Administered by the Chief of Engineers). More serious trespasses will be referred to the USACE Office of Counsel for enforcement under state and federal law, which may require restoration of the premises and collection of monetary damages.

The term “encroachment” pertains to an unauthorized structure or improvement on Government property. When encroachments are discovered, project personnel will attempt to resolve the issue at the project level. Where no resolution is reached, or where the encroachment is a permanent structure, the method of resolution will be determined by the USACE Real Estate Division, with recommendations from Operations Division and Office of Counsel. The USACE’s general policy is to require removal of encroachments, restoration of the premises, and collection of appropriate administrative costs and fair market value for the term of the unauthorized use.

The most common trespasses and encroachments are unauthorized mowing and paths, unauthorized structures such as fences and temporary structures, grazing, storage of personal property on USACE lands, and tree and vegetation removal. Trash dumping is an especially difficult and expensive problem at many USACE lakes. Encroachments can be prevented. Identifying the USACE fee boundary line and flowage easement designation are critical elements for the public who are planning for any type of activity near a USACE fee boundary.

CHAPTER 3 – RESOURCE GOALS AND OBJECTIVES

3.1 INTRODUCTION

The terms “goal” and “objective” are often defined as synonymous, but in the context of this Master Plan goals express the overall desired end state of the Master Plan whereas resource objectives are specific task-oriented actions necessary to achieve the overall Master Plan goals.

3.2 RESOURCE GOALS

The following statements, taken from EP 1130-2-550, Chapter 3, express the goals for the Ball Mountain Lake Master Plan:

GOAL A. Provide the best management practices to respond to regional needs, resource capabilities and suitability, and expressed public interests consistent with authorized project purposes.

GOAL B. Protect and manage the project’s natural and cultural resources through sustainable environmental stewardship programs.

GOAL C. Provide public outdoor recreation opportunities that support project purposes and public demands created by the project itself while sustaining the project’s natural resources.

GOAL D. Recognize the particular qualities, characteristics, and potentials of the project.

GOAL E. Provide consistency and compatibility with national objectives and other State and regional goals and programs.

In addition to the above goals, USACE management activities are guided by USACE-wide Environmental Operating Principles (EOPs) as follows:

- Foster sustainability as a way of life throughout the organization.
- Proactively consider environmental consequences of all USACE activities and act accordingly.
- Create mutually supporting economic and environmentally sustainable solutions.
- Continue to meet our corporate responsibility and accountability under the law for activities undertaken by USACE, which may impact human and natural environments.
- Consider the environment in employing a risk management and systems approach throughout the life cycles of projects and programs.
- Leverage scientific, economic and social knowledge to understand the environmental context and effects of USACE actions in a collaborative manner.
- Employ an open, transparent process that respects views of individuals and groups interested in USACE activities.

3.3 RESOURCE OBJECTIVES

Resource objectives are defined as clearly written statements that respond to identified issues and that specify measurable and attainable activities for resource

development and/or management of the lands and waters under the jurisdiction of the New England District, Ball Mountain Lake Project Office. The objectives stated in this Master Plan support the goals of the Master Plan, the USACE EOPs, and applicable national performance measures. They are consistent with authorized project purposes, federal laws and directives, regional needs, resource capabilities, and they take public input into consideration. Recreational and natural resources carrying capacities are also accounted for during development of the objectives found in this Master Plan, as well as regional and state planning documents including:

- Vermont Wildlife Action Plan
- Vermont Statewide Comprehensive Outdoor Recreation Plan

The objectives in this Master Plan are intended to provide project benefits, meet public needs, and foster environmental sustainability for Ball Mountain Lake to the greatest extent possible. Tables 3.1 through 3.4 list the objectives for Ball Mountain Lake.

Table 3.1 Recreational Objectives

Recreational Objectives	Goals				
	A	B	C	D	E
Consider existing and future potential recreational opportunities for multiple user groups while ensuring visitor safety.	*		*	*	*
Identify potential locations for future LDR or FOIR areas to accommodate visitation growth on USACE fee property. Provide opportunities for day use activities.	*		*		
Support and provide technical guidance to potential lease partners on the management of recreation facilities in accordance with public demand. Examples include universally accessible fishing docks and playground equipment in day use.	*		*		
Ensure consistency with USACE Natural Resource Management (NRM) Strategic Plan.					*
Monitor the Vermont SCORP to ensure that USACE is responsive to outdoor recreation trends, public needs and resource protection within a regional framework. All plans by others will be evaluated considering USACE policy and operational aspects of Ball Mountain Lake.			*		*

*Denotes that the objective helps to meet the specified goal.

Table 3.2 Natural Resource Management Objectives

Natural Resource Management Objectives	Goals				
	A	B	C	D	E
Give priority to the preservation and improvement of open space in public use planning, design, development, and management activities.	*	*		*	*
Work with Tribal Nations to provide access to any culturally significant natural resources.		*		*	*
Consider flood/conservation pool levels to ensure that natural resources are managed in ways that are compatible with project purposes.	*	*		*	
Actively manage and conserve fish and wildlife resources, especially threatened and endangered species and Species of Greatest Conservation Need, by implementing ecosystem management principles.	*	*		*	*
Manage high density and low-density recreation lands in ways that balance visitor use with benefits to wildlife.			*		*
Optimize resources, labor, funds, and partnerships for protection and restoration of fish and wildlife habitats.		*			*
Minimize activities which disturb the scenic beauty and aesthetics of the lake.	*	*	*	*	
Deter unauthorized use and damage of public lands through utilization of Title 36 CFR authorities, as well as state and local rules and regulation related to the protection of natural resources.	*	*	*	*	*
Manage lands and waters to reduce the spread of invasive, non-native, and aggressively spreading native species.	*	*		*	*
Protect and restore important native habitats such as previous or abandoned farm lands, bottomland hardwoods, riparian zones, and wetlands where they occur or historically occurred on project lands. Special emphasis should be placed on protection and/or restoration of special or rare plant species. Emphasize promotion of pollinator habitat, migratory bird habitat, and habitat for birds listed by USFWS as Birds of Conservation Concern.	*	*		*	*

*Denotes that the objective helps to meet the specified goal.

Table 3.3 Visitor Information, Education, and Outreach Objectives

Visitor Information, Education, and Outreach Objectives	Goals				
	A	B	C	D	E
Create opportunities (i.e., updates to local municipalities, web page) for communication with partner agencies, special interest groups, and the general public. Utilize social media as a platform to share information with visitors and stakeholders.	*			*	*

Visitor Information, Education, and Outreach Objectives	Goals				
Provide educational, interpretive, and outreach programs at the lake office and around the lake. Topics to include history, project purposes (flood risk management, water supply, water quality, recreation, and fish and wildlife), water safety, cultural resources, ecology, and USACE missions.	*	*	*	*	*
Promote USACE Water Safety message.	*		*	*	*
Educate adjacent landowners on policies and permit processes in order to reduce encroachment actions.	*	*	*	*	*
Work with local communities to engage the public and provide educational and informational opportunities.	*	*	*	*	*

*Denotes that the objective helps to meet the specified goal.

Table 3.4 Cultural Resources Management Objectives

Cultural Resources Management Objectives	Goals				
	A	B	C	D	E
As funding permits, complete an inventory in accordance with Section 110 NHPA and prepare a Cultural Resources Management Plan.	*	*		*	*
Monitor and enforce Title 36 and ARPA to prevent unauthorized excavation and removal of cultural resources.		*		*	*
Provide access by Tribal Nations to any cultural resources, sacred sites, or other Traditional Cultural Properties.	*	*			
Preserve and protect cultural resources sites in compliance with existing federal statutes and regulations.	*	*	*	*	*

*Denotes that the objective helps to meet the specified goal.

CHAPTER 4 – LAND ALLOCATION, LAND CLASSIFICATION, WATER SURFACE, AND PROJECT EASEMENT LANDS

4.1 LAND ALLOCATION

All lands at USACE water resource development projects are allocated by USACE into one of four categories in accordance with the congressionally authorized purpose for which the project lands were acquired: Operations, Recreation, Fish and Wildlife, and Mitigation. At Ball Mountain Lake, the land allocation category that applies is Operations. Operations is defined as those lands that are required to operate the project for the primary authorized purposes of flood risk management, water supply, recreation, water quality, and fish and wildlife. The remaining allocations of Recreation, Fish and Wildlife, and Mitigation would apply only if lands had been acquired specifically for these purposes.

4.2 LAND CLASSIFICATION

4.2.1 General

The objective of classifying project lands is to identify how a given parcel of land shall be used now and in the foreseeable future. Land classification is a central component of this plan, and once a particular classification is established any significant change to that classification would require a formal process including public review and comment.

4.2.2 Prior Land Classifications

The previous version of the Ball Mountain Lake Master Plan included land classification criteria that were similar, but not identical to the current criteria. In the years since the previous Master Plan was published, wildlife habitat values, surrounding land use, and regional recreation trends have changed giving rise to the need for revised classifications. The 1977 Master Plan designated acres in the written text but did not map out these areas. The previous land-use categories identified in the 1977 Master Plan included Project Operations, Operations: Recreation – Low Density Use, Operations: Natural Area. All of the proposed classifications in the 2026 Master Plan are new and are required by regulation to identify actual and project use. Table 4.1 identifies the proposed land and water surface classification at Ball Mountain lake for the 2026 Master Plan Revision.

Table 4.1 2026 Proposed Land and Water Surface Classification at Ball Mountain Lake

Proposed Land Classifications (2026)	Acres
Project Operations (PO)	110
High Density Recreation (HDR)	100
Multiple Resource Management Lands (MRML)	
Low Density Recreation (MRML-LDR)	387
Wildlife Management (MRML-WM)	311
LAND TOTAL	908
Proposed Water Surface Classifications (2026)	Acres
Open Recreation	83
Restricted	16
WATER TOTAL	99
TOTAL FEE	1007

4.2.3 Land Classifications

USACE regulations require project lands and waters to be classified in accordance with the primary use for which project lands are managed. There are six categories of classification identified in USACE regulations, including:

- Project Operations
- High Density Recreation
- Mitigation
- Environmentally Sensitive Areas
- Multiple Resource Management Lands
- Water Surface

The land and water surface classifications for Ball Mountain Lake were established after considering public comments and input from key stakeholders, including elected officials, and city and county governments. Additionally, information from the Vermont SCORP, including public comments, wildlife habitat values, and the trends analysis were used in decision making. Maps showing the various land classifications can be found in Appendix A. The following paragraphs provide acreages and descriptions of allowable uses for each of the land classifications.

Project Operations (PO)

The PO classification includes the lands managed for operation of the dam, project office, spillway, dikes, and maintenance yards, all of which must be maintained to carry out the authorized purpose of flood risk management. In addition to the operational activities taking place on these lands, limited recreational use may be allowed for activities such as public access to the shoreline for fishing. Regardless of

any limited recreation use allowed on these lands, the primary classification of PO will take precedent over other uses. There are 110 acres of PPO land specifically managed for this purpose.

High Density Recreation (HDR)

HDR lands are developed for intensive recreational activities for the visiting public, including day use areas, campgrounds, marinas, and related concession areas. Recreational areas operated by lessees on USACE lands must follow policy guidance contained in USACE regulations at ER 1130-2-550, Chapter 16. That policy includes the following statement:

“The primary rationale for any future recreation development must be dependent on the project’s natural or other resources. This dependency is typically reflected in facilities that accommodate or support water-based activities, overnight use, and day use such as marinas, campgrounds, picnic areas, trails, swimming beaches, boat launching ramps, and comprehensive resort facilities. Examples that do not rely on the project’s natural or other resources include theme parks or ride-type attractions, sports or concert stadiums, and standalone facilities such as restaurants, bars, motels, hotels, non-transient trailers, and golf courses. Normally, the recreation facilities that are dependent on the project’s natural or other resources, and accommodate or support water-based activities, overnight use, and day use, are approved first as primary facilities followed by those facilities that support them. Any support facilities (e.g., playgrounds, multipurpose sports fields, overnight facilities, restaurants, camp stores, bait shops, comfort stations, and boat repair facilities) must also enhance the recreation experience, be dependent on the resource-based facilities, [and] be secondary to the original intent of the recreation development...”

Lands classified for HDR are suitable for the development of comprehensive resorts. The regulation cited above defines Comprehensive Resort as follows:

“Typically, multi-faceted developments with facilities such as marinas, lodging, conference centers, golf courses, tennis courts, restaurants, and other similar facilities.”

There are 100 acres at Ball Mountain Lake classified as HDR. The brief description and resource management plan for each HDR area is described briefly in Chapter 5 and mapped in Appendix A.

Mitigation (MG)

The MG classification is used only for lands allocated by Congress for mitigation for the purpose of offsetting losses associated with the development of the project. There are no lands at Ball Mountain Lake with this classification.

Environmentally Sensitive Areas (ESA)

ESAs include scientific, ecological, cultural, and aesthetic features identified and in need of preservation. At Ball Mountain Lake, there no lands with this classification.

Multiple Resource Management Lands (MRML)

This land classification is divided into four sub-classifications: Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. A given tract of MRML land is classified using one of these sub-classifications, with the primary sub-classification reflective of the dominant use of the land. Typically, MRMLs support only passive, non-intrusive uses with very limited facilities or infrastructure. Where needed, some areas may require basic facilities that include, but are not limited to, minimal parking spaces, and/or primitive sanitary facilities. There are 698 acres of MRML lands at Ball Mountain Lake. The following sections describes each sub-classification, the number of acres, and primary uses for each designation.

Low Density Recreation (LDR)

LDR lands support passive public recreational use (e.g., fishing, hunting, wildlife viewing, natural surface trails, hiking, etc.). There are 387 acres under this land classification at Ball Mountain Lake.

Wildlife Management (WM)

The WM land classification applies to lands managed primarily for the conservation of fish and wildlife habitat. These lands generally include comparatively large contiguous parcels of land for passive recreation uses such as natural surface trails, fishing, hunting, and wildlife observation, unless restrictions are necessary to protect sensitive species or to promote public safety. There are 311 acres of land included in this classification at Ball Mountain Lake.

Vegetative Management (VM)

VM lands are designated for stewardship of forest, grassland and other native vegetative cover. Passive recreation activities previously described may be allowed in these areas. There are no acres of land included in this classification at Ball Mountain Lake.

Future or Inactive Recreation (FOIR)

FOIR lands have site characteristics compatible with HDR development. These are areas where HDR development was anticipated in prior land classifications, but the development either never took place or was minimal. These areas are typically closed to vehicular traffic and are managed as MRML until development takes place. There are no acres of land included in this classification at Ball Mountain Lake.

4.2.4 Water Surface Classifications

The water surface at Ball Mountain is managed through the Ball Mountain Lake Water Safety Management Plan established and updated by project staff. USACE regulations specify the possible classifications for the water surface, which are intended

to promote public safety, protect resources, or protect project operational features such as the dam and spillway. These areas are typically marked by USACE or with navigational or informational buoys, signs, or denotations on public maps and brochures. In general, the management of the water surface includes the maintenance of warning, information, and regulatory buoys as well as routine water safety patrols during peak use periods. Maintenance of buoys is the responsibility of USACE. There are 99 acres of water surface at the conservation pool of 870.5 feet NGVD29 at Ball Mountain Lake.

Open Recreation

Open Recreation includes all water surface areas available for year-round or seasonal water-based recreational use. This classification encompasses the majority of the lake water surface and is open to general recreational boating. Boaters are advised through maps and brochures, or signs at boat ramps that navigational hazards may be present at any time and at any location. Operation of a boat in these areas is at the owner's risk, as specific navigational hazards may or may not be marked with a buoy. There are 83 acres of open recreation water surface at Ball Mountain Lake.

Restricted

Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations, safety, and security purposes. The areas include the water surface immediately surrounding the outlet structure. There are 16 acres of Restricted water surface at Ball Mountain Lake.

Designated No-Wake

Designated No-Wake areas are intended to protect sensitive shorelines and improve boating safety near key recreational water access areas such as boat ramps. No-wake restrictions are managed through the project buoy plan in place for reasons of public safety and protection of property due to changes in water level and safety needs. There are no acres of designated no-wake water surface at Ball Mountain Lake,

Fish and Wildlife Sanctuary

This water surface classification applies to areas with annual or seasonal restrictions to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning. Ball Mountain Lake has no water surface areas designated as a Fish and Wildlife Sanctuary.

4.2.5 Project Easement Lands

Project Easement Lands are primarily lands on which easement interests were acquired. Fee title was not acquired on these lands, but the easement interests convey to the Federal government certain rights to use and/or restrict the use of the land for specific purposes. Easement lands are typically classified as Operations Easement, Flowage Easement, and/or Conservation Easement. At Ball Mountain Lake, Flowage Easement lands and Operations Easement are the type of easements present. A flowage easement, in general, grants to the government the perpetual right to

occasionally flood/inundate land during flood risk management operations and to prohibit construction of habitable structures and to restrict activities on the flowage easement that would interfere with flood risk management operations, namely, placement of other structures without prior written approval of the government. USACE owns approximately 965 acres of land in fee for the project and holds easements on 262 acres at Ball Mountain Lake according to the 1973 Connecticut River Basin MMWC, Appendix D (USACE, 1973). Operations Easement include access road easements which allow for access through road, water and sewer lines, and electric and telephone lines.

CHAPTER 5 – RESOURCE PLAN

5.1 MANAGEMENT BY CLASSIFICATION

This chapter describes the management plans for each land use classification within the Master Plan. The classifications that exist at Ball Mountain Lake are Project Operations, High Density Recreation, and Multiple Resource Management Lands, which consist of Low Density Recreation and Wildlife Management. The management plans describe how these project lands and water surface will be managed in broad terms. A more descriptive plan for managing these lands can be found in the Ball Mountain Lake OMP.

5.2 PROJECT OPERATIONS

Project Operations is land associated with the dam, spillway, dikes, project office, maintenance facilities, and other areas solely for the operation of the project. There are 100 acres of lands under this classification, all of which are managed by the USACE. The management plan for the PO area is to continue providing physical security necessary to ensure sustained operations of the dam and related facilities, including restricting public access in hazardous locations near the dam and spillway. Limited and passive recreation use such as bank fishing and hiking is currently allowed within some areas classified as PO, but USACE considers this use to be incidental and may prohibit such use without notice for project operational or security needs. The Administration Area Overlook Parking Area and Ball Mountain Lake Nature Trail are within the PO area at Ball Mountain Lake. Public vehicular traffic is currently not allowed on the road traversing the crest of the dam. USACE maintains the road across the dam structure.

Recommended future actions for these areas include facility upgrades to meet USACE sustainability objectives as funding and personnel allow. Implementing low impact design into future building, parking and site developments will continue to be emphasized. Opportunities to incorporate environmental stewardship objectives for land management such as invasive species control and wildlife management through use of wildlife food or pollinator plots will be implemented as appropriate.

5.3 HIGH DENSITY RECREATION

Ball Mountain Lake has 100 acres developed for intensive recreational activities for the visiting public, including day use areas, and access points, which is all managed by the USACE. National USACE policy set forth in ER 1130-2-550, Chapter 16, adopted March 30, 2009, limits new recreation development within outgranted (leased) areas on USACE lands to those activities that are dependent on a project's natural resources and typically include water-based activities, overnight use, and day use (such as campgrounds, and picnic areas). Examples of activities that are not dependent on a lake's natural resources include stand-alone theme parks, sport or concert stadiums, restaurants, and hotels. Stand-alone golf courses are considered an example of these activities that cannot be developed following adoption of Chapter 16 of ER 1130-2-550.

Based upon outdoor recreation trends documented in the Vermont SCORP and previous visitation data, activities such as walking, hiking, and playground activities remain the most favorite and are common activities that can be undertaken at Ball

Mountain Lake (see Section 2.13.3). Seeking opportunities to improve facilities and provide access to outdoor recreation activities in response to public demand are important to the USACE recreation goals of Ball Mountain Lake. The future management of HDR areas includes continuing to maintain and improve existing facilities through partnerships and other funding options.

There is only one HDR area at Ball Mountain Lake, and it is currently managed by the USACE. There are currently no HDR areas leased or outgranted to other entities. USACE will continue to review requests and ensure compliance with applicable laws and regulations for proposed activities in all USACE-operated HDR areas. USACE will also continue to ensure that recreation areas are managed and operated in accordance with the objectives prescribed in Chapter 3.

The following is a description of the main recreation area at Ball Mountain Lake. Maps showing existing parks and facilities can be found in Appendix A.

Winhall Brook Camping Area

Winhall Brook Camping Area consists of 111 campsites, 23 of which have electric and water hook-ups, and 14 sites have lean-to shelters, two of which are handicap accessible. The area contains three restroom facilities, three dish washing stations, two dump stations and a shelter for interpretive events. There is also a basketball court, playgrounds and multiple trails; including access to the West River Trail on the north and south side of the campground. Swimming is allowed in the area but there is no designated swim beach or area.

The area is open to foot traffic year-round, but the camping area is open from mid-May thru mid-October. The contact station is open from 10 am to 10 pm during the camping season. In Winhall Brook Camping Area, users are charged fees for camping. Weekly interpretive programs are given by Park Rangers who are also available to help visitors and answer questions. During the winter months, the area is groomed for snowmobiling, cross-country skiing and snowshoeing. Hunting and fishing are permitted in accordance with Federal and Vermont Fish and Wildlife laws, as well as any posted regulations.



Photo 5.1 Winhall Brook Camping Area

(Source: USACE)

5.4 MITIGATION

This classification is used for lands that were acquired specifically for the purpose of offsetting losses associated with development of the project. There are no acres at Ball Mountain Lake under this classification.

5.5 ENVIRONMENTALLY SENSITIVE AREAS

Environmentally Sensitive Areas (ESA) are areas where scientific, ecological, cultural, or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the Endangered Species Act, the NHPA, or applicable state statutes. The primary management objective for ESAs is to allow existing uses to continue but to protect sensitive resources from intensive development, use, or disturbance beyond that which currently exists. In general, these areas must be managed to ensure that they are not adversely impacted. With the exception of natural surface pedestrian trails and minimal visitor parking areas, limited or no development of public use facilities is allowed on these lands and no real estate outgrants for easements should be granted unless disturbance can be confined to the boundaries of existing easements. No agricultural or grazing uses are permitted on these lands unless necessary for a specific resource management benefit, such as habitat restoration and management. An ESA classification provides the highest level of ecological protection among the various land use classifications. There no ESA designated at Ball Mountain Lake.

5.6 MULTIPLE RESOURCE MANAGEMENT LANDS

Multiple Resource Management Lands are organized into four sub-classifications. These sub-classifications are Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. The following is a description of each sub-classification's resource objectives, acreages, and description of use.

5.6.1 Low Density Recreation

At Ball Mountain Lake, LDR lands are generally associated with primitive access points including trails and canoe and kayak launch access points. Development is generally limited to unpaved parking, natural surface boat launches, and trails. Future management of these lands calls for minimal development to maintain a healthy, ecologically adapted vegetative cover to reduce erosion and improve aesthetics. The general public may use these lands for bank fishing, hiking, and for access to the shoreline. Future uses may include additional designated multipurpose, natural surface trails. There are 387 acres classified as Low Density Recreation.

Ball Mountain Dam Recreation Area

Ball Mountain Dam Recreation Area consists of property near the dam and is approximately 30 acres. There is no day use fee for visitors to this recreation area. It is open to foot traffic year-round.

The dam access road is popular for walking, jogging, bicycling, and picnicking. The dam access road is open daily 8 am to 8 pm from the third Friday in May through the weekend after Labor Day, and Monday through Friday 8 am to 3 pm from mid-September through mid-May. A scenic overlook is located off the access road with a gazebo, picnic tables, grills and a small parking lot. Access to the West River Trail leads to site attractions such as Angel Falls, Hamilton Falls, and Jamaica State Park. Approximately 10 miles of the trail is within project owned property. There is also a cartop canoe launch.

The project office is accessible and located at the entrance to the recreation area, providing park information including brochures, fact sheets and trail maps. Parking is provided at the entrance to the recreation area, at the overlook, behind the shop building, and at the West River Trail head. There are also restroom facilities available to visitors.



Photo 5.2 Overlook at Ball Mountain Lake

Source: (Recreation.gov Agencies, 2025)

5.6.2 Wildlife Management (WM)

There are currently 311 acres of land under this classification at Ball Mountain Lake. Management efforts focus on producing native wildlife food and habitat.

The broad objective of fish and wildlife management is to conserve, maintain and improve the fish and wildlife habitat to produce the greatest dividend for the benefit of the general public. Implementation of a fish and wildlife management plan is the first step toward achieving the goals of the Fish and Wildlife Coordination Act (Public Law 85-624). VDFW manages the Vermont game lands and wildlife primarily through enforcement of laws and regulations and establishing seasons and bag limits for game species. Future management plans for wildlife areas include continued cooperation with partners and managing and improving wildlife management areas under this land classification.

There are 3 federally listed species, along with 14 federally listed migratory birds, and 10 state-listed species that could utilize habitat within the Ball Mountain Lake. Therefore, any work conducted on this project will be in accordance with the Endangered Species Act and will be appropriately coordinated with the USFWS and state resource agencies. These species (Table 2.8, 2.9 and 2.10) will continue to receive attention to ensure they are managed in accordance with their habitat needs.

Non-game wildlife is also managed. The following list of non-game programs is being or will be pursued as funds become available.

- Early detection and prevention of introduction and spread of aquatic invasive species
- Invasive plant species management
- Native vegetation restoration where needed using native species
- Fish spawning and habitat structures
- Food/habitat plots for various native wildlife
- Pollinator plots

- Wildlife friendly fencing

5.6.3 Vegetative Management

These are lands that have vegetative types considered to be sensitive and needing special classification to ensure success. There are no acres currently identified at Ball Mountain Lake for vegetative management purposes.

5.6.4 Future/Inactive Recreation Areas

These are areas with site characteristics compatible with potential future recreational development or recreation that are closed. Until there is an opportunity to develop or reopen these areas, they will be managed for multiple resources. There are no acres classified under this sub-classification at Ball Mountain Lake.

5.7 WATER SURFACE

There are 99 acres of water surface at the conservation pool of 870.5 feet NGVD29 at Ball Mountain Lake. Buoys are managed by USACE and help mark the hazards and restricted areas.

5.8 SUSTAINABILITY

Sustainability is a multi-pronged aspect of responsible stewardship of USACE lands. The outcome of sustainability initiatives is to have a program that is able to adapt to fiscal challenges, safeguards the environment, and continues to provide high quality recreational opportunities for the public. As the nation's largest provider of outdoor recreation, managing 12 million acres of lands and waters across the country, USACE is committed to implementing initiatives that link people to water.

The recreational mission of USACE is to manage and conserve natural resources, while providing quality public outdoor recreation opportunities to serve the needs of the present and future generations. This is in line, and indeed the underpinning, of all the goals and objectives for Ball Mountain Lake resources and management. The national USACE 2021 Natural Resources Management Strategic Plan identifies several goals and related objectives designed to build a more robust environmental and recreational program on USACE managed lands. The four primary goals are Workforce Development; Improved Communication; Resourcing; and Program Delivery. Under the umbrella goal of Program Delivery, several objectives center specifically on promoting environmental sustainability in all aspects of natural resources management. This includes integrating environmental operating principles and other environmental regulations and initiatives into day-to-day decision making and long-range planning. Other objectives include using Leadership in Energy and Environmental Design (LEED) certified personnel and projects in facility design and maintenance on land-based recreation areas and updating project Master Plans to include environmental sustainability elements.

Meeting the public's needs and continuing to provide a full range of outdoor recreation opportunities will require collaboration. In support of that, USACE will maintain and enhance existing rapps while seeking new and innovative types of

relationships with federal, state, and local agencies, volunteers, non-government organizations, cooperators, and others to provide certain recreation services and opportunities to the public. Besides pursuing and maintaining partnerships, it is important to continue to identify, analyze, and evaluate authorities and policies such as fee collection and retention, and increased partnership capabilities. Areas identified for changes to meet the goals and objectives of this strategy include authorities for fee collection and retention without budgetary offset, and policies that pertain to funding schedules for partnership projects.

Through creativity, innovation, strong partnerships, and environmentally sustainable stewardship, quality recreational opportunities will continue to be available to the public. This will be done while simultaneously protecting the water, environment, and cultural resources for current and future generations.

CHAPTER 6 – SPECIAL TOPICS/ISSUES/CONSIDERATIONS

6.1 COMPETING INTERESTS OF NATURAL RESOURCES

Ball Mountain Lake is a multi-purpose project with numerous authorized purposes. The authorized purposes accommodate the needs of federal, state, and municipal users which have developed over time. The benefits provided by virtue of authorized purposes are critical to the local and regional economies and are of great interest to the public. Aside from operating the reservoir to meet the needs of those entities with contractual rights, there are many competing interests for the utilization of federal lands including recreational users, adjacent landowners, those who own mineral rights, utility providers, and all entities that provide and maintain public roads. A growing population and increasing urbanization places additional stress on these competing interests through increased demand for water resources and recreation spaces as well as diminishing quality and space for natural habitat and open spaces. Balancing the interests of each of these groups to ensure that valid needs are met while at the same time protecting natural and cultural resources is a challenge. The purpose of this Plan is to guide management into the foreseeable future to ensure responsible stewardship and sustainability of the project's resources for the benefit of present and future generations.

6.2 UTILITY CORRIDORS

USACE policy allows for the establishment of designated corridors on project lands, where feasible, to serve as the preferred location for future outgrants such as easements for roads or utility lines. After obtaining public input and examining the location of existing roads and utility lines on project lands, and due to the relatively low demand for easements at Ball Mountain Lake, the USACE decided that the creation of utility corridors would not be necessary. Any entity seeking a utility easement to cross USACE property must research alternate routes around USACE property and demonstrate that a feasible alternative does not exist. Additionally, an evaluation under NEPA would be required.

6.3 CULTURAL RESOURCES AND COORDINATION WITH TRIBAL NATIONS

It is required for federal agencies to consult with affiliated Federally Recognized Tribes on various activities that take place on federal land under federal guidance including but not limited to Sections 106 and 110 of the National Historic Preservation Act (NHPA) of 1966 (as amended); Archaeological Resources Protection Act (ARPA) of 1979; Native American Graves Protection and Repatriation Act (NAGPRA); and 36 CFR Part 79, Curation of Federally-Owned and Administered Archeological Collections. Implementing regulations for Section 106 of the NHPA and NAGPRA are 36 CFR Part 800 and 43 CFR Part 10, respectively. All cultural resources laws and regulations should be addressed under the requirements of NEPA as amended. USACE summarizes the guidance provided in these laws in ER and EP 1130-2-540.

Additionally, Executive Order 13007 states that each federal agency with responsibility for the management of federal lands shall accommodate access to and ceremonial use of Native American sacred sites by religious practitioners and avoid adversely affecting the physical integrity of such sacred sites.

The New England District takes its responsibilities for consultation on a government-to-government basis very seriously. The USACE determined that the Master Plan revision would have no potential to affect cultural resources, and consultation under the laws above (NHPA, etc.) was not required. The USACE coordinated with the Elnu Abenaki Tribe, Wampanoag Tribe of Gay Head (Aquinnah) on developing best practices and ensuring areas of Tribal concern were addressed in the Master Plan. The Narragansett Tribe will be added to this coordination during the draft release phase. This exchange of knowledge from developing the Master Plan will allow USACE staff to better engage with Tribes on future projects at Ball Mountain Lake and will likely lead to more efficient reviews and better outcomes meeting objectives for both parties. Any future activities that have a potential to affect cultural resources must comply with Section 106 and 110 of the NHPA, NAGPRA, and ARPA, and USACE would consult with the Tribes as appropriate.

6.4 PRIVATE ACTIVITIES AND SHORELINE MANAGEMENT

It is the policy of the USACE to protect and manage shorelines of all civil works water resource development projects to promote the safe and healthful use of these shorelines by the public while maintaining environmental safeguards to ensure a quality resource for use by the public. The objectives of all management actions will be to achieve a balance between permitted private uses and resource protection for general public use. Public pedestrian access to and exit from these shorelines shall be preserved. The New England District generally does not permit private exclusive uses by adjacent landowners. Private exclusive use (often called private shoreline use) is defined in ER 1130-2-406 as “Any action, within the context of this rule Title [36 CFR 327.30], which gives a special privilege to an individual or group of individuals on land or water at a Corps project, that precludes use of those lands or waters by the general public, is considered to be private shoreline use.” The Master Plan does not concern private use of federal property; instead private use is managed per guidance in ER 1130-2-406 at the discretion of the New England District and project manager. See Section 2.14 for more information about Real Estate including outgrants, trespass, and encroachment.

CHAPTER 7 – PUBLIC AND AGENCY COORDINATION

7.1 PUBLIC, AGENCY, AND TRIBAL COORDINATION OVERVIEW

The USACE is dedicated to serving the public interests in support of the overall development of land uses related to land management of cultural, natural, and recreational resources of Ball Mountain Lake. An integral part of this effort is gathering public comment and engaging stakeholders in the process of planning. USACE policy guidance in ER and EP 1130-2-550 requires thorough public involvement and agency coordination throughout the Master Plan revision process including any associated NEPA process. Public involvement is especially important at Ball Mountain Lake to ensure that future management actions are environmentally sustainable and responsive to public outdoor recreation needs. The following milestones provide a brief look at the overall process of revising the Ball Mountain Lake Master Plan.

The USACE began planning to revise the Ball Mountain Lake Master Plan in the spring of 2025. The objectives for the Master Plan revision are to (1) revise land classifications to reflect changes in USACE land management policies since the 1977 Master Plan, (2) prepare new resource goals and objectives, and (3) revise the Master Plan to reflect new agency requirements for Master Plan documents in accordance with ER 1130-2-550, Change 7, January 30, 2013 and EP 1130-2-550, Change 5, January 30, 2013.

7.2 INITIAL STAKEHOLDER AND PUBLIC MEETINGS

On April 15, 2025, a public open house was held at the Jamaica Town Hall in Jamaica, Vermont to inform the public of the intent to revise the Master Plan. The public input period remained open for 30 days from April 15, 2025 to May 15, 2025. At the public information meeting a presentation was given that included the following topics:

- What is a Master Plan?
- What a Master Plan is Not
- Why Revise a Master Plan?
- Overview of the National Environmental Policy Act (NEPA) process
- Master Planning Process
- Instructions for submitting comments

USACE received 5 comments for Ball Mountain Lake. These comments and the USACE response can be found in Appendix E.

7.3 PUBLIC AND AGENCY REVIEW OF DRAFT MP, EA, AND FONSI

This section will be completed after the public comment period for the Draft MP, EA, and FONSI.

7.4 TRIBAL COORDINATION

In 2025, the USACE coordinated with the appropriate Tribal Nations on the notice of availability for the scoping effort for this Master Plan and Environmental Assessment seeking their comments and confirmation of interest. A sample letter is included in Appendix B.

The following recognized Tribal Nations were notified in 2025 prior to the initial Open House:

- Elnu Abenaki Tribe
- Wampanoag Tribe of Gay Head (Aquinnah)

For the Draft Master Plan and Environmental Assessment, the same group of recognized Tribal Nations were notified of the Open House and the availability of the draft documents.

CHAPTER 8 – SUMMARY OF RECOMMENDATIONS

8.1 SUMMARY OVERVIEW

The preparation of this Master Plan for Ball Mountain Lake followed the USACE master planning guidance in ER 1130-2-550 and EP 1130-2-550, both dated 30 January 2013. Three major requirements set forth in the guidance include the preparation of contemporary resource objectives, classification of project lands using the approved classification standards, and the preparation of a resource plan describing in broad terms how the land in each of the land classifications will be managed into the foreseeable future. Additional important requirements include rigorous public involvement throughout the process, consideration of regional recreation and natural resource management priorities identified by other federal, state, and municipal authorities, and coordinated with local Tribal Nations.

The study team endeavored to follow this guidance to prepare a Master Plan that will provide for enhanced recreational opportunities for the public, improve environmental quality, and foster a management philosophy conducive to existing and projected USACE staffing levels at Ball Mountain Lake as also reflected in ER 1130-2-540 Change 2 dated July 2005. Factors considered in the Plan development were identified through public involvement and review of regional and statewide planning documents including the current Vermont SCORP prepared by the Department of Forests, Parks, and Recreation (FPR) and the Vermont Outdoor Recreation Economic Collaborative (VOREC). This Master Plan will guide the long-term sustainability of the outdoor recreation program and natural resources associated with Ball Mountain Lake.

8.2 LAND CLASSIFICATION

A key component in preparing this Master Plan was examining prior land classifications and addressing the needed transition to the updated land classification standards that reflect how lands are being managed now and will be managed in the foreseeable future. The updated land classification standards will also comply with current USACE standards. Public comment was solicited to assist in making these land reclassification decisions. The USACE coordinated with Tribal Nations to provide input on cultural and natural resources to help inform the land classification decisions. Chapter 7 of this Plan describes the public involvement process and Appendix E provides a summary of public comments received. After analyzing public comment, examining recreational trends, and taking into account regional natural resource management priorities, USACE team members reclassified the federal lands and waters associated with Ball Mountain Lake as described in Table 8.1 and explained in Table 8.2. A map is included in Appendix A to define the areas where proposed changes in land classification were implemented.

Table 8.1 2026 Proposed Land and Water Surface Classification at Ball Mountain Lake

Proposed Land Classifications (2026)	Acres
Project Operations (PO)	110
High Density Recreation (HDR)	100
Multiple Resource Management Lands (MRML)	
Low Density Recreation (MRML-LDR)	387
Wildlife Management (MRML-WM)	311
LAND TOTAL	908
Proposed Water Surface Classifications (2026)	Acres
Open Recreation	83
Restricted	16
WATER TOTAL	99
TOTAL FEE	1007

Table 8.2 Justification for Proposed Land Classifications

Land Classification	Justification
Project Operations (PO)	All lands classified as PO are managed and used primarily in support of critical operational requirements related to the primary mission of flood risk management. The Administration Area Overlook Parking Area and the Ball Mountain Lake Nature Trail are located within PO.
High Density Recreation (HDR)	Winhall Brook Camping Area is included in HDR as this park area is developed for intensive recreational activities. It includes campsites and lean-to-shelters.
MRML – Low Density Recreation (LDR)	Ball Mountain Lake Recreation Area is included in MRML-LDR to support passive recreational activities. It also includes a scenic overlook and access to the West River Trail.
MRML – Wildlife Management (WM)	MRML-WM includes acres to conserve, maintain, and improve the fish and wildlife habitat. Some areas are managed in partnership with key partners including the Vermont Department of Fish and Wildlife (VDFW).
Water Surface	Ball Mountain Lake includes Open Recreation and Restricted areas.

CHAPTER 9 – BIBLIOGRAPHY

- Belda, M., Holtanova, E., Halenka, T., & Kalvova, J. (2014). Climate classification revisited: From koppen to trewartha. *Climate Research*, 59(1), 1-13.
doi:<https://doi.org/10.3354/cr01204>
- EPA. (2013a, April 16). Level III Ecoregions of the Conterminous United States. Corvallis, OR, USA: U.S. EPA Office of Research and Development (ORD) - National Health and Environmental Effects Research Laboratory (NHEEL). Retrieved from https://dmap-prod-oms-edc.s3.us-east-1.amazonaws.com/ORD/Ecoregions/us/Eco_Level_III_US.html
- EPA. (2013b, April 16). Level IV Ecoregions of the Conterminous United States. Corvallis, OR, USA: U.S. EPA Office of Research and Development (ORD) - National Health and Environmental Effects Research Laboratory (NHEEL). Retrieved from https://dmap-prod-oms-edc.s3.us-east-1.amazonaws.com/ORD/Ecoregions/us/Eco_Level_IV_US.html
- EPA. (2023). *EJSCREEN*. Retrieved 2025, from EPA.gov: ejscreen.epa.gov/mapper/
- EPA. (2024). Retrieved November 3, 2025, from Ecoregions of North America: <https://www.epa.gov/eco-research/ecoregions-north-america>
- EPA. (2025a). *Current Nonattainment Counties for All Criteria Pollutants*. Retrieved May 12, 2025, from Green Book: <https://www3.epa.gov/airquality/greenbook/ancl.html>
- EPA. (2025b). Retrieved May 12, 2025, from Facility Level Information on Greenhouse Gases Tool (FLIGHT): https://ghgdata.epa.gov/ghgp/main.do?site_preference=normal
- EPA. (2025c). Retrieved October 29, 2025, from EnviroMapper: <https://enviro.epa.gov/envirofacts/enviromapper/search>
- FPR and VOREC. (2024). *Move Forward Together Vermont*. SCORP.
- Friends of the West River Trail. (n.d.). *Friends of the West River Trail*. Retrieved from The West River Trail: <https://westrivertrail.org/an-invitation/about/>
- Getting Lost Together . (2021, August). *Winhall Brook Campground*. Retrieved from Getting Lost Together: <https://gettinglosttogether.com/hiking-trail-reviews/2021/8/8/winhall-brook-campground>
- Griffith, G., Omernik, J., Bryce, S., Royte, J., Hoar, D., Homer, J., & Hellyer, G. (2009). Ecoregions of New England (color poster with map, descriptive text, summary tables, and photographs). Reston, Virginia.
- Kottek, M., Frieser, J., Beck, C., Rudolf, B., & Rubel, F. (2006). World Map of Koppen-Geiger climate classification updated. *Meteorologische Zeitschrift*, 15(3), 259-263. doi:<https://doi.org/10.1127/0941-2948/2006/0130>
- McLaughlin, S., & Thomas, P. (1994). A Historical Perspective on Prehistoric Archaeology in Vermont. *Journal on Vermont Archaeology* , 13-29.

- NOAA. (2023). JetStream Max: Addition Koppen-Geiger Climate Subdivisions. Retrieved October 7, 2025, from <https://www.noaa.gov/jetstream/global/climatezones/jetstream-max-addition-koppen-geiger-climate-subdivisions>.
- NOAA. (2025). NOWData - NOAA Online Weather Data. Retrieved May 12, 2025, from <https://www.weather.gov/wrh/Climate?wfo=aly>
- NOAA. (2026). Retrieved April 1, 2026, from Essential Fish Habitat Mapper: <https://www.habitat.noaa.gov/apps/efhmapper/?page=NEMA-Map>
- NRCS. (2025). Retrieved May 14, 2025, from Web Soil Survey: <https://websoilsurvey.nrcs.usda.gov/app/>
- Omernik, J. M. (1987). Ecoregions of the Conterminous United States. Map Supplement. *Annals of the Association of American Geographers*, 77(1), 118-125.
- Omernik, J., & Griffith, G. (2014). Ecoregions of the conterminous United States: evolution of a hierarchical spatial framework. *Environmental Management*, 54(6), 1249-1666.
- Recreation.gov Agencies. (2025). *Ball Mountain Lake*. Retrieved from Recreation.gov: <https://www.recreation.gov/gateways/201>
- State of Vermont. (2017). *Guidelines for Conducting Archaeology in Vermont*. Vermont Archaeology Guidelines. Retrieved from https://outside.vermont.gov/agency/ACCD/ACCD_Web_Docs/HP/Archaeology/ARCHEO_GUIDELINES.pdf
- Thomas, P. (1994). Vermont Archaeology Comes of Age: A Perspective on Vermont's Prehistoric Past. *The Journal of Vermont Archaeology*, 38-91.
- Thomas, P., & Kelley, L. (n.d.). *An Archaeological View of Vermont's Past*. State of Vermont.
- USACE. (1973). *Connecticut River Basin Master Manual of Water Control, Appendix D, West River Watershed*. Waltham, Mass: USACE New England Division.
- USACE. (1977). *Ball Mountain Lake Master Plan for Recreation Resources Development*.
- USACE. (1982). *Ball Mountain Lake Forest Management Plan Appendix B*.
- USACE. (1982). *Fish and Wildlife Plan Master Plan Appendix D*.
- USACE. (2019-2023). *VERS Reports by Fiscal Year*. Retrieved from Visitation Estimation & Reporting System (VERS): <https://gateway.erdc.dren.mil/nrm/vers/final.cfm?Step=1>
- USACE. (2024, December 31). *Ball Mountain Lake*. Retrieved from USACE New England District Website: <https://www.nae.usace.army.mil/Missions/Recreation/Ball-Mountain-Lake/>
- USACE. (n.d.). *Ball Mountain Lake*. Retrieved July 2025, from Corps Lakes Gateway: <https://corpslakes.erdc.dren.mil/visitors/projects.cfm?Id=E600850>

- USFWS. (2021). *Birds of Conservation Concern 2021*. Retrieved November 4, 2025, from Birds of Conservation Concern 2021: <https://www.fws.gov/media/birds-conservation-concern-2021>
- USFWS. (2025a). Retrieved October 29, 2025, from Information for Planning and Consultation (IPaC): <https://ipac.ecosphere.fws.gov/>
- USFWS. (2025b). National Wetland Inventory . Washington D.C.: U.S. Department of the Interior. Retrieved October 29, 2025, from National Wetlands Inventory: <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>
- USGS. (2019). *Watershed Boundary Dataset (Refreshed October 2025)*. Retrieved November 2025, from USGS The National Map, National Boundaries Dataset: <https://apps.nationalmap.gov/viewer>
- USGS. (2020, February 19). *USGS Watershed Boundaries*. Retrieved from ArcGIS Hub: <https://hub.arcgis.com/maps/esri:usgs-watershed-boundaries/explore>
- USGS. (2024, January 22). *Hydrologic Unit Codes*. Retrieved from National Water Information System: Help System: https://help.waterdata.usgs.gov/code/hucs_query?fmt=html
- USGS. (n.d.). *Aquifers of Alluvial and Glacial Origin, 200209*. Reston, VA: U.S. Geological Survey.
- VANR. (2025). Retrieved October 7, 2025, from Natural Resources Atlas: <https://anrmaps.vermont.gov/websites/anra5/>
- VCGI. (2024). *Public Groundwater Source Protection Areas Data*. Retrieved from Data.Gov- Vermont Center for Geographic Information: <https://catalog.data.gov/dataset/ground-water-spa-95c6f>
- VDFW. (2020). *Explanation of Legal Status and Information Ranks*. Vermont Natural Heritage Inventory. Retrieved from <http://vtfishandwildlife.com/document/explanation-legal-status-and-information-rankspdf>
- VDFW. (2022). *Birds of Vermont*. Vermont Natural Heritage Inventory. Retrieved October 7, 2025, from <http://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Learn%20More/Library/REPORTS%20AND%20DOCUMENTS/NONGAME%20AND%20NATURAL%20HERITAGE/SPECIES%20LISTS/Birds%20of%20Vermont.pdf>
- VDFW. (2025a). *Mammals*. Retrieved October 7, 2025, from Agency of Natural Resources: Vermont Fish and Wildlife Department: <http://vtfishandwildlife.com/learn-more/vermont-critters/mammals>
- VDFW. (2025b). *Natural Heritage Information*. Retrieved October 7, 2025, from Agency of Natural Resources Vermont Fish and Wildlife Department: <http://vtfishandwildlife.com/conservation/conservation-planning/natural-heritage-inventory/natural-heritage-information>
- Vermont Geological Survey. (2010). *Report Well Yields in Bedrock Wells, Windham County, Vermont*. Retrieved from

<https://dec.vermont.gov/sites/dec/files/geo/OpenFile/GWCountyMaps/YieldRockWindham.pdf>

Vermont Reptile and Amphibian Atlas. (2025). *Vermont's Reptile and Amphibian Species and Conservation Status*. Retrieved October 7, 2025, from Vermont Reptile and Amphibian Atlas: <https://www.vtherpatlas.org/herp-species-in-vermont/>

VT DEC. (2010). *Water Quality Certification. Application for Ball Mountain Dam Hydroelectric Project*. Retrieved November 14, 2025, from https://elibrary.ferc.gov/eLibrary/docinfo?accession_number=20100714-5106

VT DEC. (2022). *Environmental Protection Rule 29A. Vermont Water Quality Standards*. Vermont Department of Environmental Conservation Watershed Management Division.

VT DEC. (2025). *Priority Listing of Vermont Waters*. Retrieved October 7, 2025, from Agency of Natural Resources, Department of Environmental Conservation: <https://dec.vermont.gov/watershed/tasc/assessment-and-listing#Assessment>

VT DEC. (n.d.). *Basin Planning for the West, Williams, and Saxton Rivers (Basin 11) and Connecticut River Direct Tributaries*. Retrieved November 10, 2025, from Agency of Natural Resources Department of Environmental Conservation: <https://dec.vermont.gov/water-investment/watershed-planning/basins-and-planners/basin11>

Water Resources Division, USGS. (2000). *Ground Water Atlas of the United States: Segment 12*. Reston, Virginia: US Department of the Interior, USGS. doi:<https://doi.org/10.3133/ha730>

Wiken, E., Nava, F., & Griffith, G. (2011). *North American Terrestrial Ecoregions - Level III*. Montreal, Canada: Commissions for Environmental Cooperation. Retrieved November 19, 2025, from https://dmap-prod-oms-edc.s3.us-east-1.amazonaws.com/ORD/Ecoregions/pubs/NA_TerrestrialEcoregionsLevel3_Final-2june11_CEC.pdf

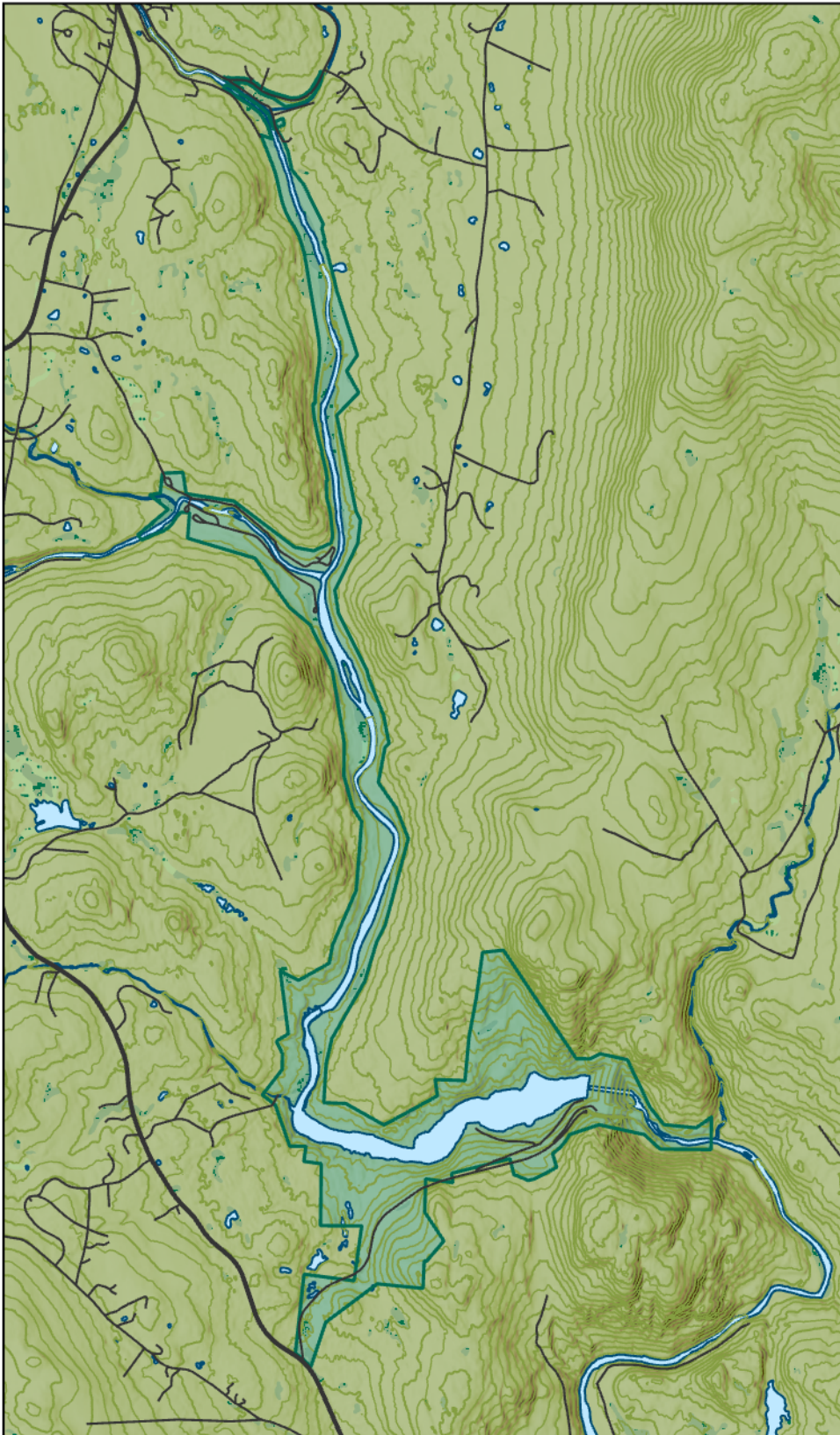
APPENDIX A – LAND CLASSIFICATION, MANAGING AGENCIES, AND RECREATION MAPS



US Army Corps
of Engineers®
New England District

BALL MOUNTAIN LAKE

2026 MASTER PLAN REVISION
SHEET INDEX (MAP 0.1)



Sheet Index

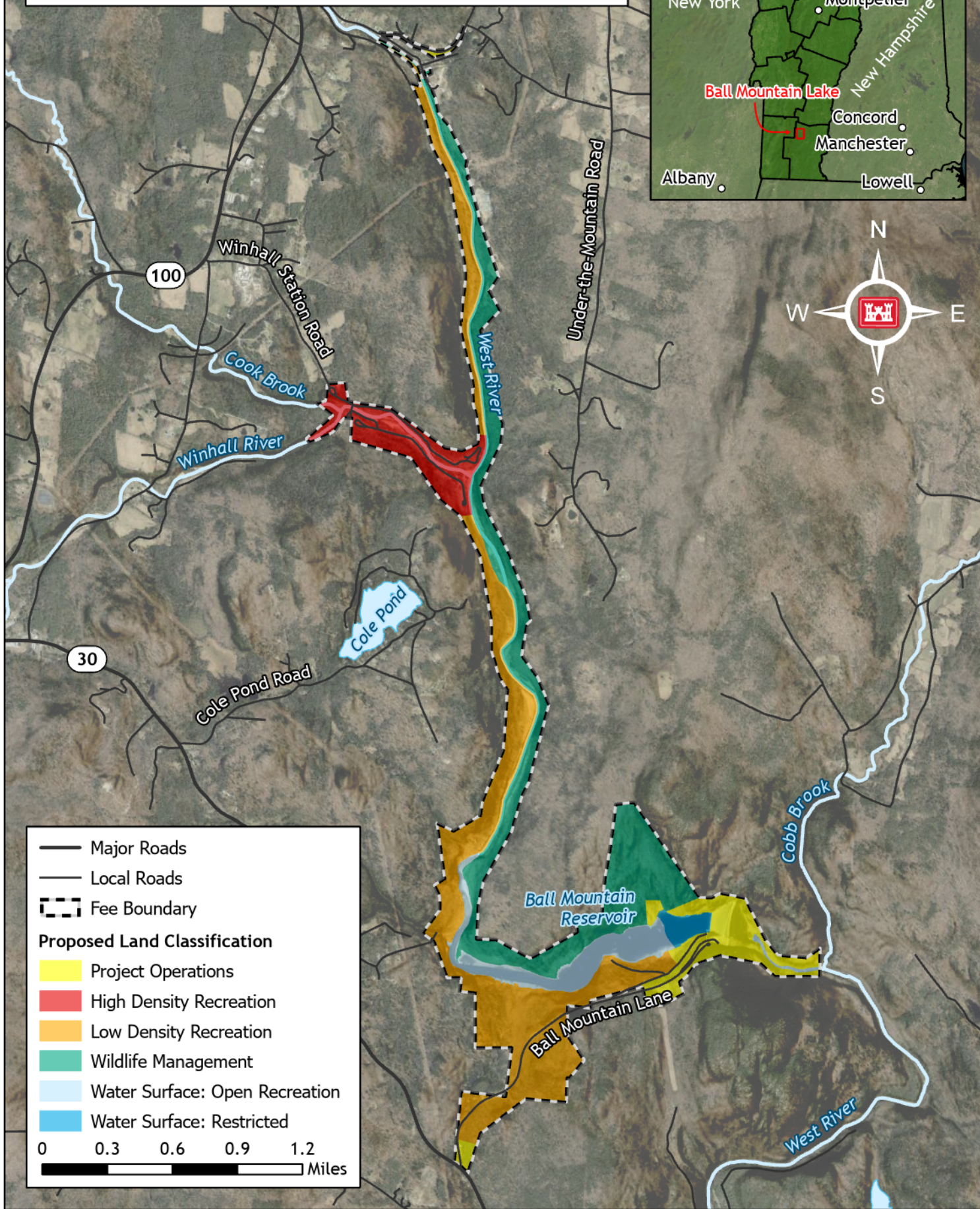
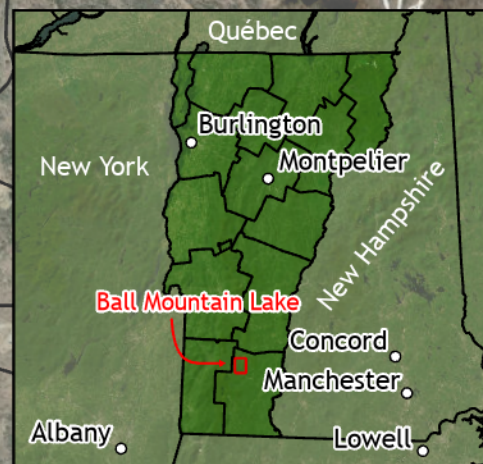
- 0.1 *Sheet Index*
- 1.1 *Land Classification*
- 2.1 *Land Classification - Index Overview*
- 2.2 - 2.3 *Land Classification - Indices 1 -2*
- 3.1 *Recreation Areas - Overview*
- 3.2 *Winhall Brook Camping Area*
- 3.3 *Ball Mountain Dam Recreation Area*
- 4.1 *High Tension Power Lines*



US Army Corps
of Engineers®
New England District

BALL MOUNTAIN LAKE

2026 MASTER PLAN REVISION - LAND CLASSIFICATIONS (MAP 1.1)



— Major Roads

— Local Roads

--- Fee Boundary

Proposed Land Classification

Yellow: Project Operations

Red: High Density Recreation

Orange: Low Density Recreation

Green: Wildlife Management

Light Blue: Water Surface: Open Recreation

Dark Blue: Water Surface: Restricted

0 0.3 0.6 0.9 1.2
Miles

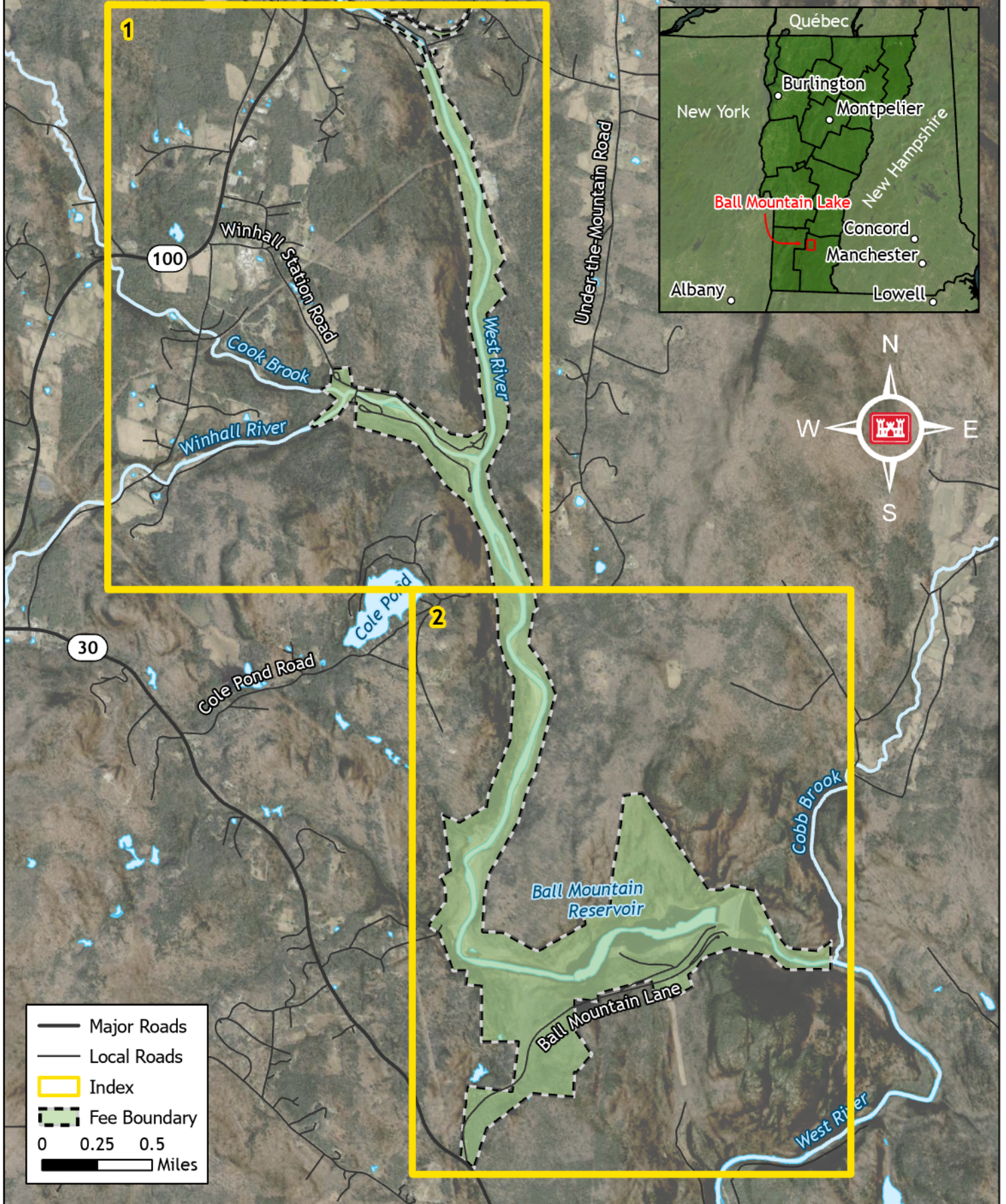


US Army Corps
of Engineers®
New England District

BALL MOUNTAIN LAKE

2026 MASTER PLAN REVISION - LAND

CLASSIFICATION - INDEX OVERVIEW (MAP 2.1)



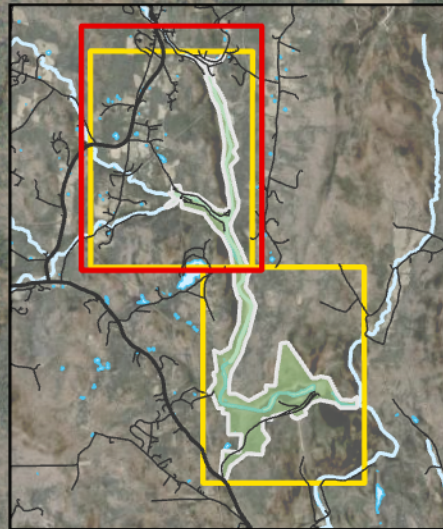


US Army Corps
of Engineers®
New England District

BALL MOUNTAIN LAKE

2026 MASTER PLAN REVISION -

LAND CLASSIFICATION - INDEX 1 (MAP 2.2)



100

West River

Winhall Station Road

Cook Brook

Winhall River

Cole Pond



— Major Roads

— Local Roads

--- Fee Boundary

Proposed Land Classification

Project Operations

High Density Recreation

Low Density Recreation

Wildlife Management

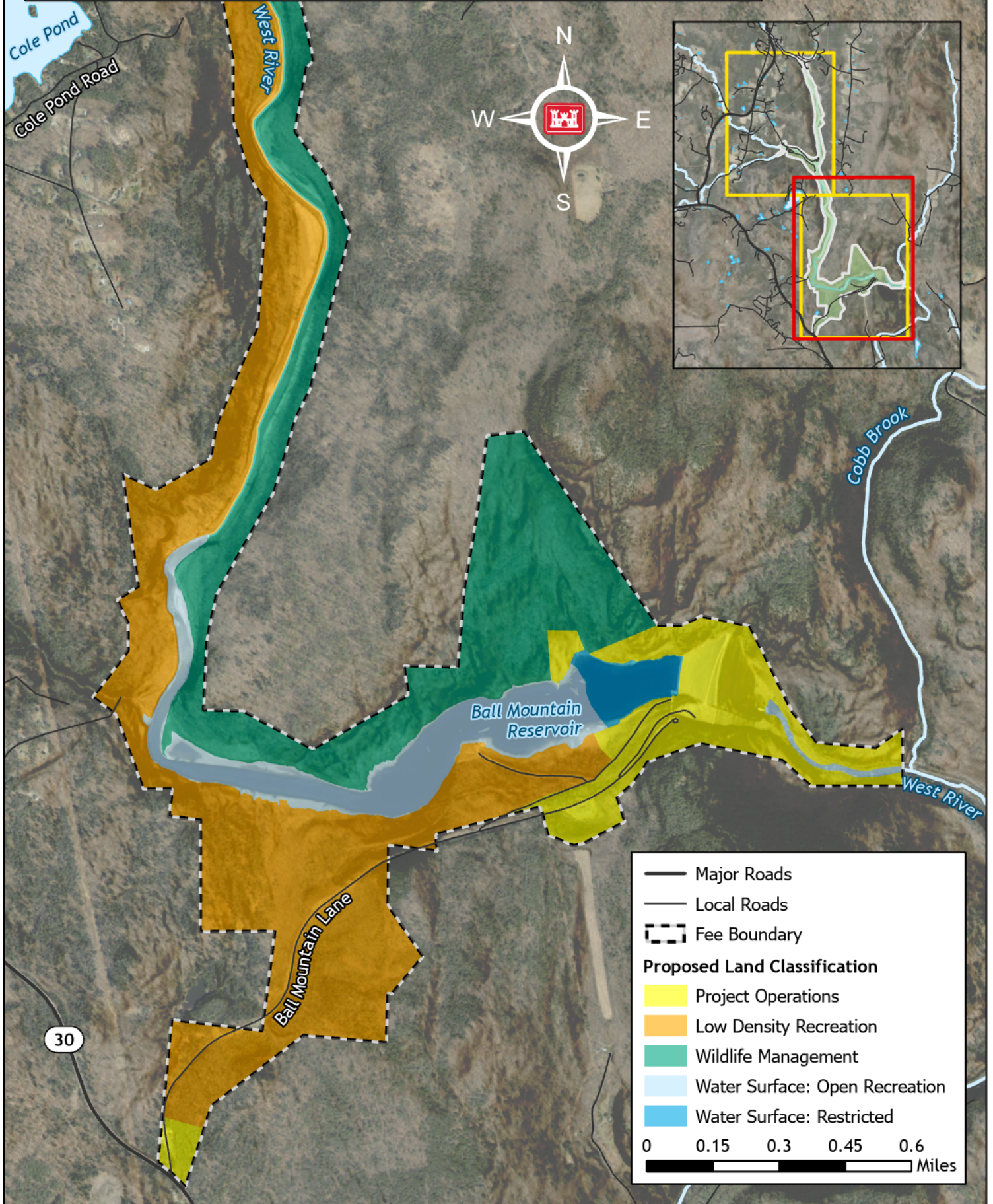
0 0.15 0.3 0.45 0.6
Miles



US Army Corps
of Engineers®
New England District

BALL MOUNTAIN LAKE

2026 MASTER PLAN REVISION -
LAND CLASSIFICATION - INDEX 2 (MAP 2.3)

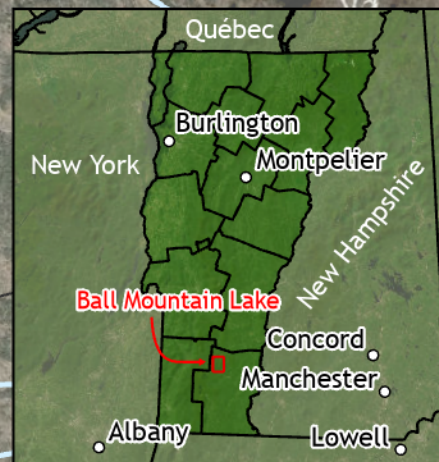




US Army Corps
of Engineers®
New England District

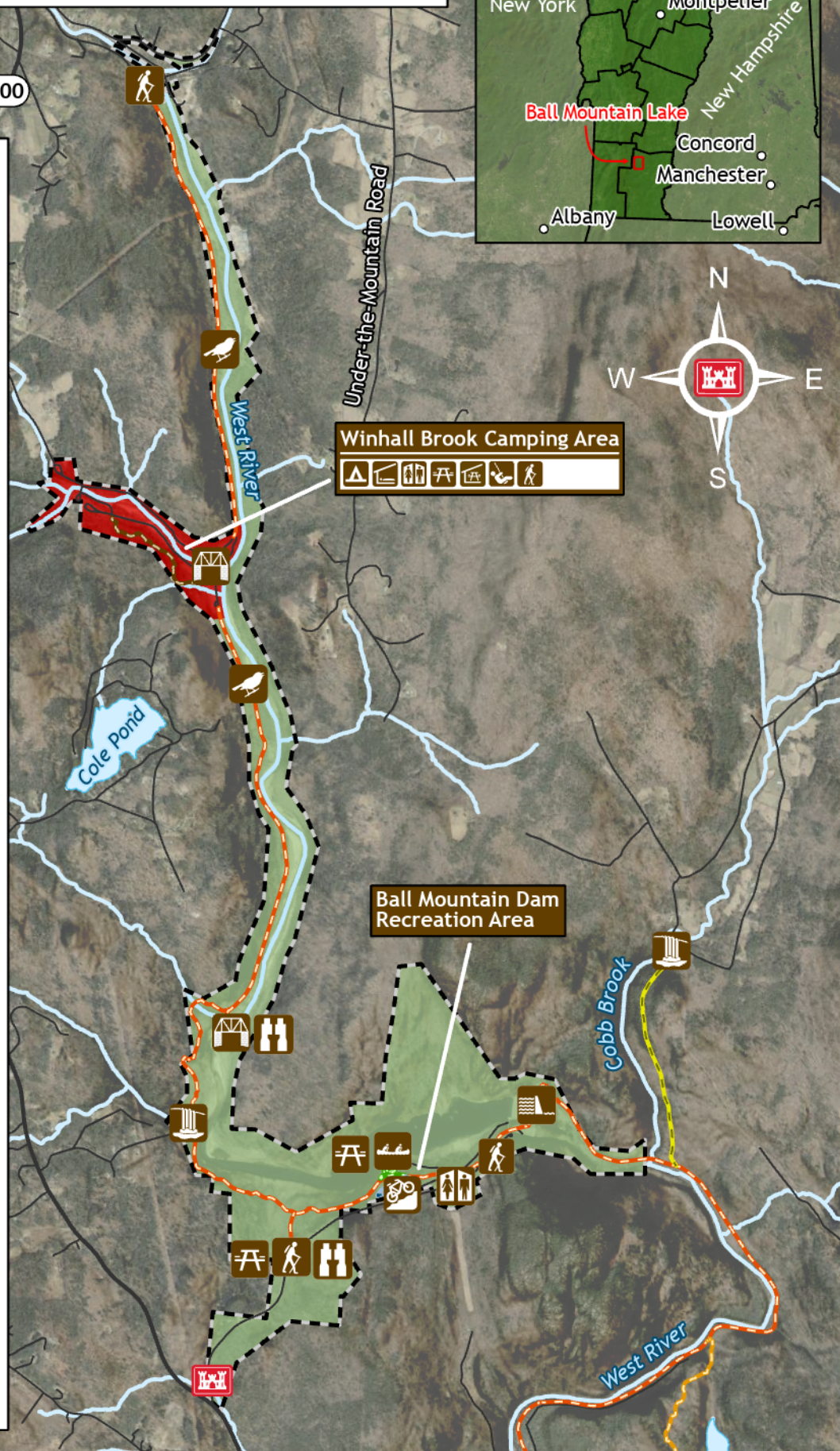
BALL MOUNTAIN LAKE

2026 MASTER PLAN REVISION - RECREATION OVERVIEW (MAP 3.1)



- Project Office
- Bird Watching Station
- Canoe Launch
- Scenic View
- Mountain Bike Trailhead
- Trailhead
- Playground
- Restrooms
- Camping
- Sleeping Shelter
- Picnic Area
- Picnic Shelter
- Dam
- Waterfall
- Railroad Bridge Abutment
- Winhall Woods Walk (Interpretive)
- West River Trail (Multi-Use)
- Overlook Trail (Hiking)
- Switch Road Trail (Hiking)
- Hard Corps (Mountain Bike)
- Having a Ball (Mountain Bike)
- Major Roads
- Local Roads
- Fee Boundary
- Park Areas
- Non-Park Areas

0 0.3 0.6 0.9
Miles





US Army Corps
of Engineers®
New England District

BALL MOUNTAIN LAKE

2026 MASTER PLAN REVISION - RECREATION -
WINHALL BROOK CAMPING AREA (MAP 3.2)



Cook Brook

Winhall River

West River

- North Side Campsite
- South Side Campsite
- Lean-to Shelter
- Playground
- Restrooms
- Picnic Shelter
- Railroad Bridge Abutment
- Dump Station
- Contact Station
- Winhall Woods Walk (Interpretive)
- West River Trail (Multi-Use)
- Local Roads
- Fee Boundary

0 300 600
Feet

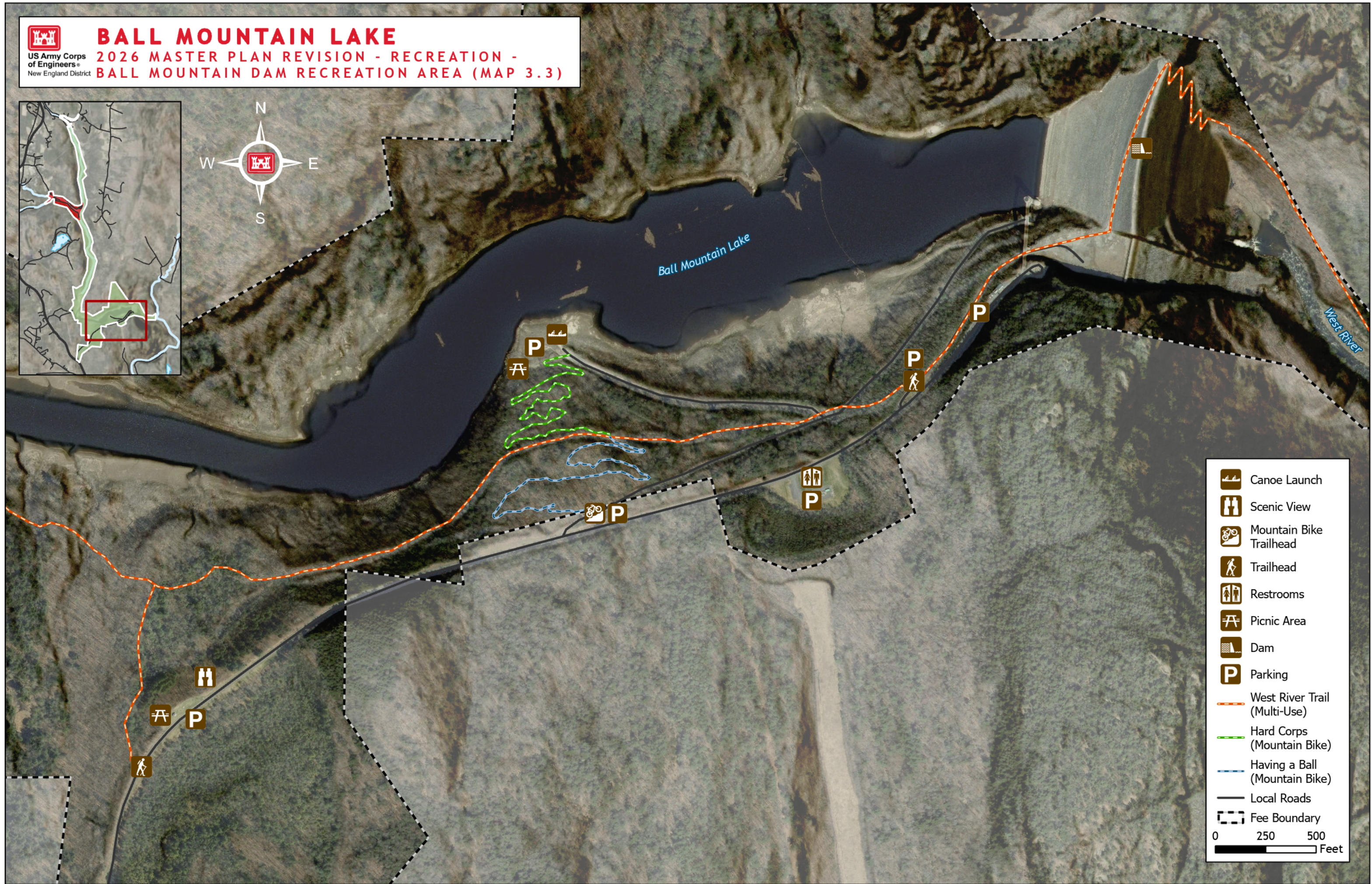




US Army Corps
of Engineers®
New England District

BALL MOUNTAIN LAKE

2026 MASTER PLAN REVISION - RECREATION -
BALL MOUNTAIN DAM RECREATION AREA (MAP 3.3)

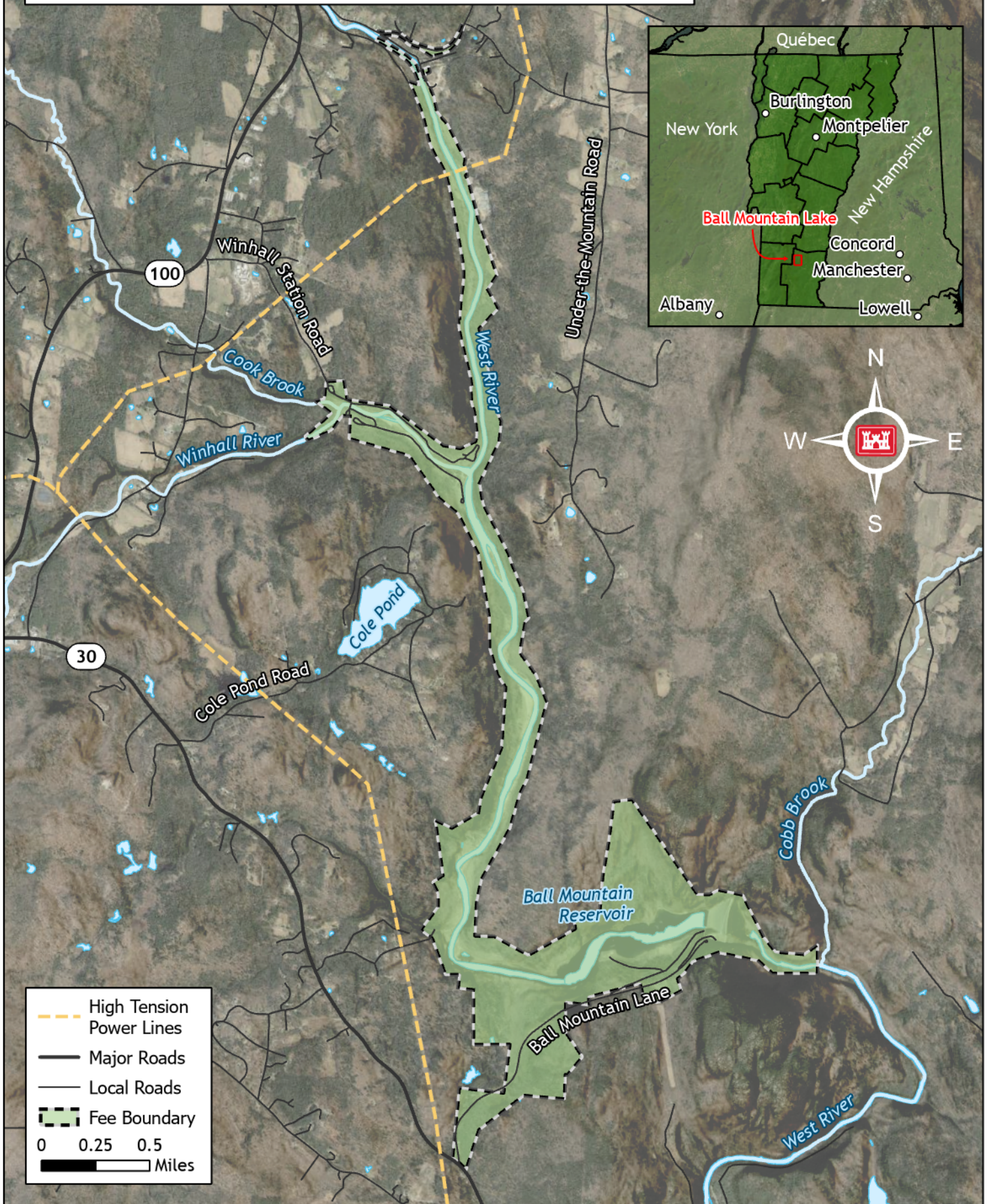




US Army Corps
of Engineers®
New England District

BALL MOUNTAIN LAKE

2026 MASTER PLAN REVISION -
HIGH TENSION POWER LINES (MAP 4.1)



APPENDIX B – NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DOCUMENTATION

Draft Environmental Assessment (EA) and Finding of No
Significant Impact (FONSI)

**Ball Mountain Lake
Master Plan**

**Windham County, Vermont
E6-O-1763725186**



**US Army Corps
of Engineers** ®
New England District

July 2026

Table of Contents

SECTION 1: INTRODUCTION.....	1
1.1 PROJECT LOCATION AND SETTING.....	1
1.2 PURPOSE AND NEED.....	1
SECTION 2: PROPOSED ACTION AND ALTERNATIVES.....	2
2.1 NO ACTION ALTERNATIVE.....	4
2.2 PROPOSED ACTION ALTERNATIVE.....	5
SECTION 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES.....	7
3.1 LAND USE.....	7
3.1.1 No Action Alternative.....	7
3.1.2 Proposed Action.....	7
3.2 WATER RESOURCES.....	9
3.2.1 No Action Alternative.....	9
3.2.2 Proposed Action.....	9
3.3 AIR QUALITY.....	9
3.3.1 No Action Alternative.....	9
3.3.2 Proposed Action.....	10
3.4 CLIMATE AND GREENHOUSE GASES.....	10
3.4.1 No Action Alternative.....	10
3.4.2 Proposed Action.....	10
3.5 TOPOGRAPHY, GEOLOGY, AND SOILS.....	10
3.5.1 No Action Alternative.....	10
3.5.2 Proposed Action.....	10
3.6 NATURAL RESOURCES.....	11
3.6.1 No Action Alternative.....	11
3.6.2 Proposed Action.....	11
3.7 THREATENED AND ENDANGERED SPECIES AND ESSENTIAL FISH HABITAT.....	11
3.7.1 No Action Alternative.....	14
3.7.2 Proposed Action.....	14
3.8 INVASIVE SPECIES.....	15
3.8.1 No Action Alternative.....	15
3.8.2 Proposed Action.....	15
3.9 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE.....	15
3.9.1 No Action Alternative.....	15
3.9.2 Proposed Action.....	16
3.10 HEALTH AND SAFETY.....	16
3.10.1 No Action Alternative.....	16
3.10.2 Proposed Action.....	16
3.11 AESTHETIC RESOURCES.....	16
3.11.1 No Action Alternative.....	16
3.11.2 Proposed Action.....	16
3.12 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES.....	17
3.12.1 No Action Alternative.....	17

3.12.2	Proposed Action	17
3.13	SOCIOECONOMICS AND DEMOGRAPHICS	17
3.13.1	No Action Alternative.....	17
3.13.2	Proposed Action.....	17
3.14	RECREATION	18
3.14.1	No Action Alternative.....	18
3.14.2	Proposed Action.....	18
SECTION 4:	COMPLIANCE WITH ENVIRONMENTAL LAWS	19
SECTION 5:	PUBLIC AND AGENCY COORDINATION.....	23
SECTION 6:	REFERENCES.....	24

List of Tables

Table 1.	Proposed Land and Water Surface Classifications and Acreages.....	5
Table 2.	Federally Listed Threatened and Endangered Species.....	12
Table 3.	Federally Listed Migratory Bird Species	12
Table 4.	State-Listed Conservation Species Potentially Occurring within the Ball Mountain Lake Federal Fee Boundary	14

List of Figures

Figure 1.	1977 MP Land Classifications for Ball Mountain Lake	4
Figure 2.	Proposed Land and Water Surface Classifications for Ball Mountain Lake	6

List of Acronyms

CFR	Code of Federal Regulations
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
FONSI	Finding of No Significant Impact
HDR	High Density Recreation
HTRW	Hazardous, Toxic, and Radioactive Waste
IPaC	Information for Planning and Consultation
LDR	Low Density Recreation
MP	Master Plan
MRML	Multiple Resource Management Lands
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
PO	Project Operations
SHPO	State Historic Preservation Office
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VANR	Vermont Agency of Natural Resources
VT DEC	Vermont Department of Environmental Conservation
VT DFW	Vermont Department of Fish and Wildlife
VT FPR	Vermont Department of Forests, Parks, and Recreation
WM	Wildlife Management

This page intentionally left blank

FINDING OF NO SIGNIFICANT IMPACT
2026 Ball Mountain Lake Master Plan Revisions
Windham County, Vermont
E6-O-1763725186

The U.S. Army Corps of Engineers (USACE), New England District, proposes to revise, adopt, and implement the Ball Mountain Lake Master Plan, as required by Engineering Regulation 1130-2-550 and Engineering Pamphlet 1130-2-550. Ball Mountain Dam is a rolled earth fill embankment dam that provides flood risk management to the Upper Connecticut River Basin. The Flood Control Act of 1938, as amended, authorized Ball Mountain Lake and Dam (referred to hereafter as “Ball Mountain Lake”) as a part of the Upper Connecticut River Basin flood control system. The Flood Control Act of 1944, as amended, authorized the development of Ball Mountain Lake for recreation.

The Ball Mountain Lake Master Plan is a strategic land use management document that guides the efficient, cost-effective, comprehensive management, development, and use of recreation, natural resources, and cultural resources located at Ball Mountain Lake. The Master Plan and supporting documentation provide an inventory and analysis of goals, objectives, and recommendations for USACE lands and waters at Ball Mountain Lake, with input from the public, stakeholders, and subject matter experts.

USACE has completed an Environmental Assessment (EA) for this project in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. USACE is fully revising the 1977 Master Plan to reflect current ecological, socio-demographic, and outdoor recreation trends that are impacting the lake, as well as those anticipated to occur within the next 25 years.

The EA, incorporated herein by reference, evaluated two alternatives: the Proposed Action and No Action Alternative. Under the No Action Alternative, no federal action would be undertaken to adopt and implement the Ball Mountain Lake Master Plan and the USACE would continue to manage Ball Mountain Lake’s natural resources as set forth in the 1977 MP.

The Proposed Action consists of adopting and implementing the Ball Mountain Lake Master Plan, replacing the 1977 Master Plan. The Ball Mountain Lake Master Plan includes the classification of all federal fee lands and water surface areas along with resource goals and objectives. The proposed land classifications include Project Operations, High Density Recreation, Low Density Recreation, and Wildlife Management. Water surface area classifications include Open Recreation and Restricted areas.

I find that based on the evaluation of environmental effects discussed in the EA, this action is not a major federal action significantly affecting the quality of the environment. The EA includes an evaluation of the affected environment and the geographical context and intensity of the reasonably foreseeable effects of the action.

The effects of the proposed action relative to significance criteria are summarized below. None are implicated to warrant a finding of NEPA significance.

- (i) The degree to which the action may adversely affect public health and safety. The project is expected to have no effects on public health and safety.
- (ii) The degree to which the action may adversely affect unique characteristics of the geographic area such as historic or cultural resources, parks, Tribal sacred sites, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. The project will have no potential for adverse impacts to unique characteristics of the geographic area such as Tribal sacred sites, prime farmlands, wild and scenic rivers, or ecologically critical areas. The project will have no potential for adverse impacts on historical and cultural resources.
- (iii) Whether the action may violate relevant Federal, State, Tribal, or local laws or other requirements or be inconsistent with Federal, State, Tribal, or local policies designed for the protection of the environment. The action will not violate federal, state, tribal or local laws or policies for the protection of the environment.
- (iv) The degree to which the potential effects on the human environment are highly uncertain. The effects are not uncertain. USACE has revised numerous master plans.
- (v) The degree to which the action may adversely affect resources listed or eligible for listing in the National Register of Historic Places (NRHP). The project will have no potential for adverse effects on historic properties eligible or listed on the NRHP.
- (vi) The degree to which the action may adversely affect an endangered or threatened species or its habitat, including habitat that has been determined to be critical under the Endangered Species Act of 1973. The project will have no effect on any federal or state threatened or endangered species or designated critical habitat for such species.
- (vii) The degree to which the action may adversely affect rights of Tribal Nations that have been reserved through treaties, statutes, or Executive Orders. The project will not adversely affect rights of Tribal Nations that have been reserved through treaties, statutes, or Executive Orders.

Based on my review and evaluation of the environmental effects as presented in the EA, I have determined that the implementation and adoption of the 2026 Ball Mountain Lake Master Plan is not a major federal action significantly affecting the quality of the environment, an Environmental Impact Statement is not required and will not be prepared, and the NEPA process is concluded.

I certify that the resulting EA represents the following: the USACE's good-faith effort to prioritize documentation of the most important considerations and factors required by NEPA within the congressionally mandated page limits and timeline; that this prioritization reflects the USACE's expert judgment; the document is substantially complete; that any considerations addressed briefly or left unaddressed were, in the USACE's judgment, comparatively not of a substantive nature that meaningfully informed the consideration of environmental effects and the resulting decision on how to proceed; and that in the USACE's judgment the analysis contained therein is adequate to inform and reasonably explain the USACE's final decision regarding the proposed federal action.

DRAFT

Date

TBD

Colonel, Corps of Engineers
District Engineer

This page intentionally left blank

SECTION 1: INTRODUCTION

The U.S. Army Corp of Engineers (USACE), New England District, has prepared this Environmental Assessment (EA) to analyze the potential environmental effects associated with the adoption and implementation of the Ball Mountain Lake Master Plan (MP). This MP is a programmatic document subject to evaluation under the National Environmental Policy Act (NEPA) of 1969, as amended, and all appropriate federal and state environmental regulations, laws, and executive orders.

The 2026 MP is a strategic land use management plan that provides direction to preserve, conserve, restore, maintain, manage, and develop all natural, cultural, and recreational resources of a USACE water resource project, which includes all government-owned lands in and around a reservoir. It is a vital tool for responsible stewardship and sustainability of the project's natural, cultural, and recreational resources. The 2026 MP identifies conceptual types and levels of activities, but does not include designs, project sites, or estimated costs. All actions carried out by the USACE, other agencies, and individuals granted leases to USACE lands must be consistent with the 2026 MP.

1.1 PROJECT LOCATION AND SETTING

Ball Mountain Lake is a multi-purpose reservoir located along the West River in Jamaica, Vermont, in the Upper Connecticut River Basin. Construction of Ball Mountain Dam was completed in 1961. The dam is a part of seven flood risk management dams within the Upper Connecticut River Basin. Ball Mountain Lake was authorized in 1938 for flood risk management and in 1944 for recreation. Ball Mountain Lake's project lands span approximately 1,227 acres total, with a lake surface area of 75 acres. Ball Mountain Lake's drainage area is 172 square miles. For more information on Ball Mountain Lake, please refer to Chapter 1.5 of the 2026 MP.

1.2 PURPOSE AND NEED

The 2026 MP is intended to serve as a comprehensive land and recreation management plan with an effective life of approximately 25 years. The purpose of the 2026 MP is to ensure that the conservation and sustainability of the land, water, and recreational resources at Ball Mountain Lake comply with applicable environmental laws and regulations and to maintain quality lands for future public use. Engineer Pamphlet 1130-2-550 requires a revision of an MP that no longer serves its intended purpose due to a combination of age and substantial changes to the project. Therefore, the revised MP is being adopted and implemented to provide effective guidance in USACE decision-making.

SECTION 2: PROPOSED ACTION AND ALTERNATIVES

During the alternative development process, different land classifications were evaluated for each parcel of USACE land. Land classifications were determined by primary use alongside the consideration of the multiple Congressionally authorized missions of the Project, public and agency comments, USACE staff knowledge, and potential impacts to the social, cultural, and environmental resources. The goals for the 2026 MP include the following:

GOAL A. Provide the best management practices to respond to regional needs, resource capabilities and suitability, and expressed public interests consistent with authorized project purposes.

GOAL B. Protect and manage the project's natural and cultural resources through sustainable environmental stewardship programs.

GOAL C. Provide public outdoor recreation opportunities that support project purposes and public demands created by the project itself while sustaining the project's natural resources.

GOAL D. Recognize the particular unique, characteristics, and potentials of the project.

GOAL E. Provide consistency and compatibility with national objectives and other State and regional goals and programs.

In addition to the above goals, USACE management activities are guided by USACE-wide Environmental Operating Principles as follows:

- Foster sustainability as a way of life throughout the organization.
- Proactively consider environmental consequences of all USACE activities and act accordingly.
- Create mutually supporting economic and environmentally sustainable solutions.
- Continue to meet our corporate responsibility and accountability under the law for activities undertaken by USACE, which may impact human and natural environments.
- Consider the environment in employing a risk management and systems approach throughout the life cycles of projects and programs.
- Leverage scientific, economic, and social knowledge to understand the environmental context and effects of USACE actions in a collaborative manner.

- Employ an open, transparent process that respects views of individuals and groups interested in USACE activities.

Resource objectives were developed to support the goals of the 2026 MP, USACE Environmental Operating Principles, and applicable national performance measures. Resource objectives are consistent with authorized project purposes, federal laws and directives, regional needs, resource capabilities, and public consideration. Recreational and natural resources carrying capacities were considered alongside state planning documents, including Vermont's Wildlife Action Plan, Tactical Basin Plans, and the Statewide Comprehensive Outdoor Recreation Plan. Refer to Chapter 3 of the 2026 MP for a description of the resource objectives.

During the alternative development workshop, project lands were classified to identify how a given parcel of land shall be used now and in the foreseeable future. Land classifications to be used are defined as follows:

- **Project Operations (PO):** Lands required for operation of the dam, spillway, dikes, offices, maintenance facilities, and other areas used solely for the operation of Ball Mountain Lake. These lands allow for limited recreational use such as public access to the shoreline for fishing or hiking along the top of the dikes, but the primary classification of PO will take precedent over other uses.
- **High Density Recreation (HDR):** Lands developed for intensive recreational activities for the visiting public including day use areas and campgrounds. These areas could also be for commercial concessions and quasi-public development.
- **Multiple Resource Management Lands (MRML):** Allows for the designation of a predominate use with the understanding that other compatible uses may also occur on these lands.
 - Low Density Recreation (LDR): Lands with minimal development or infrastructure that supports passive recreational use (primitive camping, fishing, hunting, trails, wildlife viewing, etc.)
 - Wildlife Management (WM): Lands designated for stewardship of fish and wildlife habitat that permit passive recreation unless restrictions are necessary to protect sensitive species or promote public safety.
- **Water Surface:** Allows for surface water zones.
 - Restricted: Water areas restricted for project operations, safety, and security.
 - Open Recreation: Water areas available for year-round or seasonal water-based recreational use

2.1 NO ACTION ALTERNATIVE

The No Action Alternative serves as a basis for comparison to the anticipated effects of the Proposed Action Alternative. Under the No Action Alternative, USACE would not adopt and implement the 2026 MP. USACE would continue to manage Ball Mountain Lake's natural resources as set forth in the 1977 MP. The 1977 MP classified the majority of federal fee lands as Operations: Natural Area, with approximately 675 acres. Other land classifications include Operations: Recreation – Low Density Use, approximately 120 acres, and Project Operations, approximately 170 acres (USACE, 1977; Figure 1).

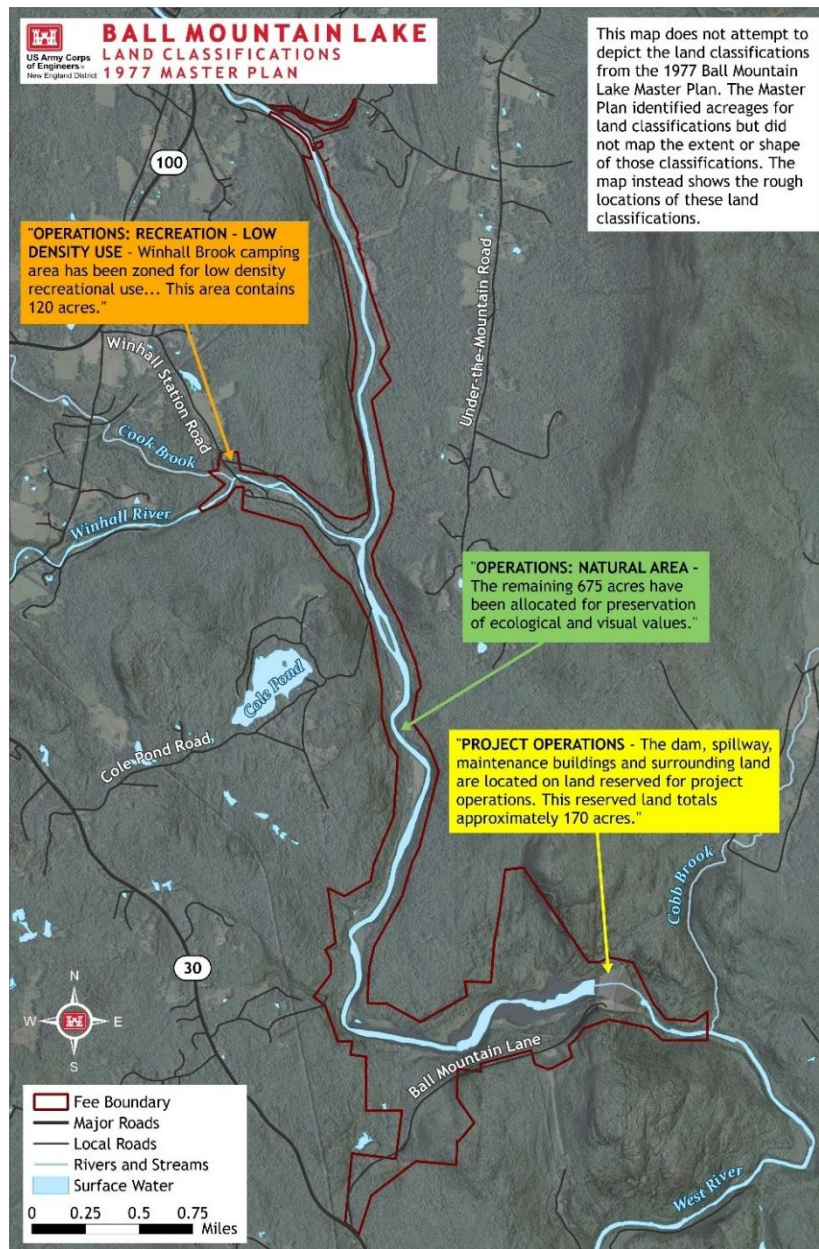


Figure 1. 1977 MP Land Classifications for Ball Mountain Lake

2.2 PROPOSED ACTION ALTERNATIVE

Under the Proposed Action, USACE will adopt and implement the 2026 MP, replacing the 1977 MP. The Proposed Action will meet regional stewardship goals associated with good stewardship of land, water, and recreational resources, address identified recreational trends; and allow for continued use and development of project lands without violating national policies or public laws.

The 2026 MP will classify all federal fee land at Ball Mountain Lake into land management categories. Proposed land classifications include PO, HDR, LDR, and WM lands. The 2026 MP would also classify all water surface areas into Open Recreation and Restricted water surfaces. Table 1 and Figure 2 show the acreages and extent of the proposed land and water surface classifications. The 1977 MP did not include specific extents for the land classifications; therefore, the acreages are not described. Refer to Section 2.0, above, for descriptions of proposed classifications.

Table 1. Proposed Land and Water Surface Classifications and Acreages at Ball Mountain Lake

Proposed Land Classifications (2027)	Acres
Project Operations (PO)	110
High Density Recreation (HDR)	100
Multiple Resource Management Lands (MRML)	
Low Density Recreation (LDR)	387
Wildlife Management (WM)	311
LAND TOTAL	908
Proposed Water Surface Classifications (2025)	Acres
Open Recreation	83
Restricted	16
WATER TOTAL	99
TOTAL FEE	1007

* Acreage totals differ due to rounding while adding parcels.

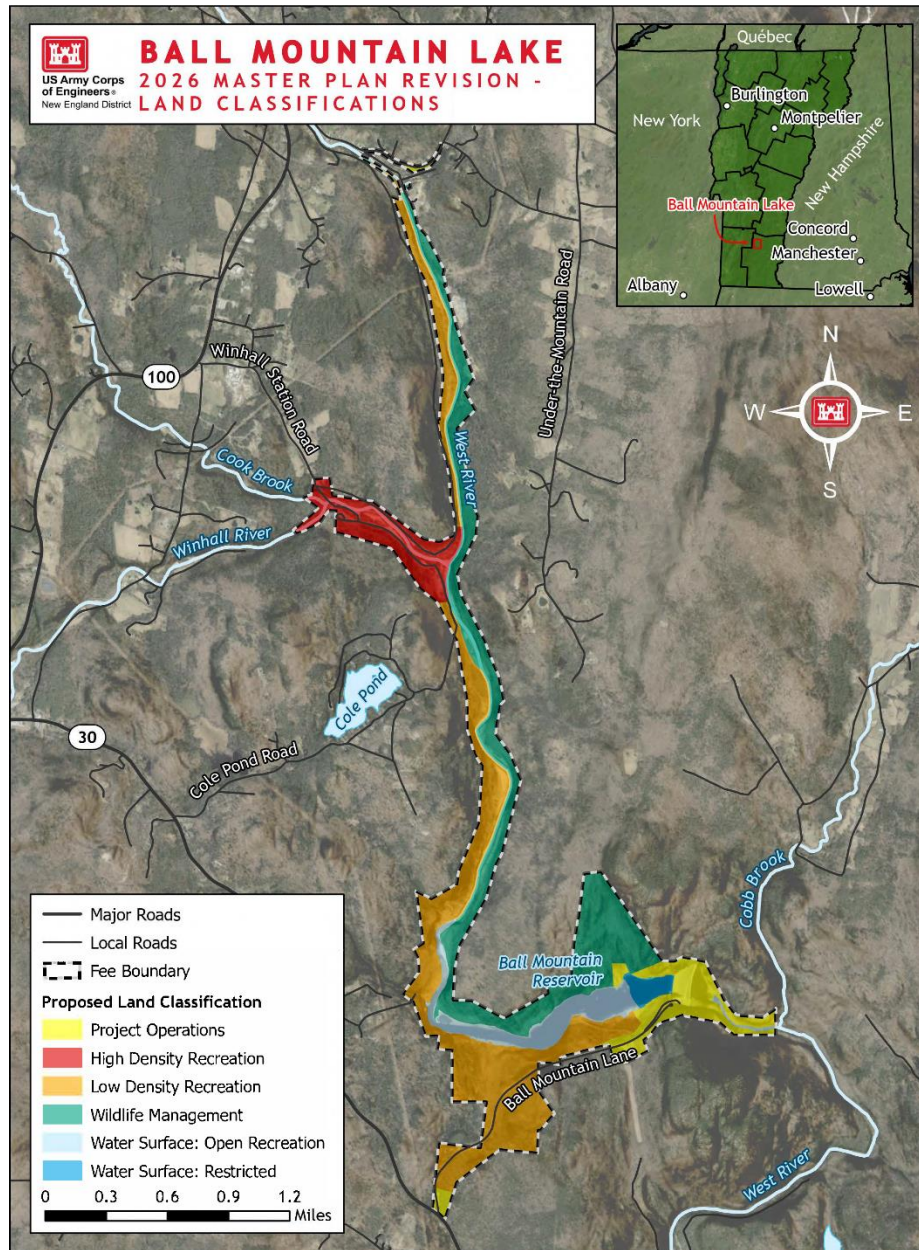


Figure 2. Proposed Land and Water Surface Classifications for Ball Mountain Lake

SECTION 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the natural, cultural, and social resources at Ball Mountain Lake and the environmental consequences of the alternatives. A full description of the existing conditions of resources can be found in Chapter 2 of the 2026 MP. Reasonably foreseeable impacts are evaluated in terms of type, context, intensity, and duration and can be either beneficial or adverse as a result of the action.

3.1 LAND USE

Please refer to Chapter 4.2 of the 2026 MP for existing land use information in and around Ball Mountain Lake.

3.1.1 No Action Alternative

The No Action Alternative will result in moderate, adverse long-term impacts on land use. Under the No Action Alternative, the 2026 MP would not be implemented, and existing land use management would not reflect current and future needs, and existing land use management would not meet operational and recreational needs. As a result, land use management would be inefficient due to conflicting guidance and management of USACE lands.

3.1.2 Proposed Action

The Proposed Action will result in moderate, long-term beneficial impacts to land use. Under the Proposed Action the 2026 MP would be implemented. The objectives for the 2026 MP describe current and foreseeable land uses while considering expressed public opinion, regional goals and trends, and USACE policies that have evolved to meet day-to-day operational needs. The majority of the reclassifications will maintain and improve current land use management. Descriptions of the 2026 MP land classifications changes can be found below, and Table 1 shows the land classification differences expressed as acreages.

Project Operations (PO)

The Proposed Action will result in a net decrease in PO. PO lands are managed and used primarily in support of critical operational requirements related to the primary missions of flood risk management and water conservation. PO lands include lands associated with the dam, spillway, levees, project office, maintenance facilities, and other areas solely for project operations. The Administration Area Overlook Parking Area and the Ball Mountain Lake Nature Trail are also located within PO lands. Potential future actions for PO lands include routine operations and maintenance and facility upgrades. Future opportunities will meet USACE sustainability objectives and environmental stewardship objectives (e.g., invasive species control, wildlife management) as appropriate.

MRML – High Density Recreation (HDR)

The Proposed Action will result in a net increase of HDR. The 1977 MP did not include federal fee lands classified for HDR. The Proposed Action will reclassify the Winhall Brook Camping Area from LDR to HDR. Potential future actions include the maintenance and improvement of existing facilities through partnerships and other funding options.

MRML – Low Density Recreation (LDR)

The Proposed Action will result in a net increase of LDR. The 1977 MP previously classified the Winhall Brook Camping Area as LDR. The Proposed Action will classify the Ball Mountain Lake Recreation Area as LDR, and reclassify the Winhall Brook Camping Area to HDR. Potential future actions include the development of additional designated multipurpose, natural surface trails. Minimal development would occur within LDR lands to reduce erosion and improve aesthetics.

MRML - Wildlife Management (WM)

The Proposed Action will result in a net decrease of WM. The Proposed Action includes the reclassification of the Ball Mountain Lake Recreation Area from WM to LDR. Potential future actions for WM lands include continued cooperation with partners and managing, maintaining and improving trails, connecting to regional trail networks, and providing additional access including small, natural surface parking where feasible.

Water Surface Areas

The Proposed Action will result in a net increase of Water Surface. This is due to more precise shoreline mapping from current data. There were no previous water surface area classifications at Ball Mountain lake. The 2026 MP will result in a net increase of water surface classified as Open Recreation or Restricted areas. The majority of the lake water surface is classified as Open Recreation. Restricted areas are associated with Ball Mountain Dam. The areas include the water surface immediately surrounding the outlet structure and downstream areas surrounding the flood control gates.

3.2 WATER RESOURCES

Please refer to Chapters 2.1, 2.3, and 2.7.6 in the 2026 MP for more information on existing conditions for hydrology (including surface and ground water), water quality, and wetlands, respectively.

3.2.1 No Action Alternative

The No Action Alternative will result in no impacts to water resources. Under the No Action Alternative, the 2026 MP would not be implemented. As a result, there would be no changes to existing water resources.

3.2.2 Proposed Action

The Proposed Action will result in minor, beneficial impacts to water resources due to the 2026 MP's updated resource objectives. Implementation of the 2026 MP would result in natural resource management objectives that are expected to impact water resources. Impacts include objectives that beneficially impact surface waters or wetlands (e.g., riparian zones, wetlands). The following natural resource management objectives may provide minor, beneficial impacts:

- Manage lands and waters to reduce the spread of invasive, non-native, and aggressively spreading native species.
- Protect and restore important native habitats such as previous or abandoned farmlands, bottomland hardwoods, riparian zones, and wetlands where they occur or historically occurred on project lands. Special emphasis should be placed on protection and/or restoration of special or rare plant species.

3.3 AIR QUALITY

For more information on existing conditions for air quality at Ball Mountain Lake, please refer to Chapter 2.4 in the 2026 MP.

3.3.1 No Action Alternative

The No Action Alternative will result in no changes to existing air quality at Ball Mountain Lake. The 1977 MP would remain in compliance with the Clean Air Act, as amended, as no project activities would result in the contribution of criteria pollutants.

3.3.2 Proposed Action

The Proposed Action will result in no changes to existing air quality at the project and in the region. The 2026 MP would not implement any actions (i.e., ground disturbing activities) that will result in impacts to criteria pollutants and would therefore remain in compliance with the Clean Air Act.

3.4 CLIMATE AND GREENHOUSE GASES

For more information on existing conditions for climate at Ball Mountain Lake, please refer to Chapter 2.5 in the 2026 MP.

3.4.1 No Action Alternative

The No Action Alternative would result in no impacts to climate. Under the 1977 MP, there would be no changes to existing climate at Ball Mountain Lake.

3.4.2 Proposed Action

The Proposed Action will result in no impacts to climate and greenhouse gases as the Proposed Action will not result in changes to air quality. The 2026 MP does not include activities which would contribute to a detectable change in emissions in the region.

3.5 TOPOGRAPHY, GEOLOGY, AND SOILS

Please refer to Chapter 2.6 of the 2026 MP for more information on existing conditions for topography, geology, and soils at Ball Mountain Lake.

3.5.1 No Action Alternative

The No Action Alternative will have no impacts to topography, geology, or soils. Under the No Action Alternative, the 1977 MP would remain effective and no benefits to topography, geology, and soils would result from land reclassification. No ground disturbing activities would take place that could potentially affect topography, geology, or soils resources.

3.5.2 Proposed Action

The Proposed Action will have no impacts to topography, geology, or soils. No ground disturbing activities would take place that could potentially affect topography, geology, or soils at Ball Mountain Lake.

3.6 NATURAL RESOURCES

For existing conditions on natural resources (including fish and wildlife resources and vegetation resources), refer to Chapters 2.7.1, 2.7.2, 2.7.5, and 2.7.6 of the 2026 MP.

3.6.1 No Action Alternative

The No Action Alternative will result in minor, adverse long-term impacts to natural resources. Under the No Action Alternative, the 2026 MP would not be implemented, and land management would not be updated to reflect current natural resources management policies and needs at Ball Mountain Lake.

3.6.2 Proposed Action

The Proposed Action will result in minor, long-term beneficial impacts to natural resources. Under the Proposed Action, the 2026 MP would be implemented, and land management policies would be updated to reflect current needs and natural resource requirements. The 2026 MP resource goals and objectives aim to further enhance, conserve, and protect natural resources, including Species of Greatest Conservation Need and state and federally listed species.

3.7 THREATENED AND ENDANGERED SPECIES AND ESSENTIAL FISH HABITAT

The Endangered Species Act of 1973, as amended, provides a means to conserve threatened and endangered species. An endangered species is a species in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Species may be considered endangered or threatened because of any of the following factors (16 U.S.C 1533(a)(1)):

- (1) the present or threatened destruction, modification, or curtailment of its habitat or range;
- (2) overutilization for commercial, recreational, scientific, or educational purpose;
- (3) disease or predation;
- (4) the inadequacy of existing regulatory mechanisms; and
- (5) other natural or human-induced factors affecting continued existence.

In addition, the U.S. Fish and Wildlife Service (USFWS) identifies species that are candidates for listing as a result of identified threats to their continued existence. Proposed species are those that have been proposed in the Federal Register to be listed under Section 4 of the Endangered Species Act.

Section 7(a)(2) of the Endangered Species Act requires Federal agencies to ensure that any action authorized, funded, or carried out by such agency is not likely to 1) jeopardize the continued existence of any endangered or threatened species, or 2) result in the destruction or adverse modification of critical habitat. An official species list was obtained from the USFWS's Information for Planning and Consultation tool (IPaC) on May 14, 2025 (Attachment A). Threatened and Endangered species as well as Migratory Bird Treaty Act, and Bald and Golden Eagle Act species are described in Table 2 and Table 3.

Table 2. Federally Listed Threatened and Endangered Species Potentially Occurring at Ball Mountain Lake

Common Name	Scientific Name	Federal Listing Status
Monarch Butterfly	<i>Danaus plexippus</i>	Proposed Threatened
Northern long-eared bat	<i>Myotis septentrionalis</i>	Endangered
Tricolored bat	<i>Perimyotis subflavus</i>	Proposed Endangered

Table 3. Federally Listed Migratory Bird Species Potentially Occurring at Ball Mountain Lake

Common Name	Scientific Name
Bald eagle ¹	<i>Haliaeetus leucocephalus</i>
Bay-breasted warbler	<i>Setophaga castanea</i>
Bicknell's thrush	<i>Catharus bicknellii</i>
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Canada warbler	<i>Cardellina canadensis</i>
Cape May warbler	<i>Setophaga tigrina</i>
Chimney swift	<i>Chaetura pelagica</i>
Evening grosbeak	<i>Coccothraustes vespertinus</i>
Olive-sided flycatcher	<i>Contopus cooperi</i>
Prairie warbler	<i>Setophaga discolor</i>
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>
Veery	<i>Catharus fuscescens fuscescens</i>
Wood thrush	<i>Hylocichla mustelina</i>

¹ Species protected under the Bald and Golden Eagle Act

A list of state-listed rare, threatened, and endangered species was obtained from the Vermont Department of Environmental Conservation (VT DEC) (Attachment A). Table 4 provides a summary of state-listed species potentially occurring at Ball Mountain Lake, as well as their state ranks and status. Status describes a species' or communities' listing under the Vermont Endangered Species Law (10 V.S.A. Chapter 123). State ranks characterize the rarity or endangerment of the species or habitat within Vermont (VDFW, 2020). The state ranks include:

- S1 - Very rare. At very high risk of extinction or extirpation due to extreme rarity, very steep declines, or other factors;
- S2 – Rare. At high risk of extinction or extirpation due to very restricted range, very few populations, steep declines, or other factors;
- S3 – Uncommon. At moderate risk of extinction or extirpation due to restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors;
- S4 – Common to uncommon. Locally common or widely scattered to uncommon, but not rare; some cause for long-term concern due to declines or other factors; or stable over many decades and not threatened but of restricted distribution or other factors;
- S5 – Common. Widespread and abundant.

In addition to state-listed species, Ball Mountain Lake includes state significant natural communities. Red Oak – Northern Hardwood Forest is a common to uncommon (S4) natural community which occurs near Ball Mountain Dam (VANR, 2025). This habitat occurs occasionally at low to moderate elevations in Vermont. The habitat is similar to Northern Hardwoods forests, but includes drier site conditions and a predominance of red oak in the forest canopy. Human disturbance is common in these habitats, frequently due to the removal of timber (Thompson and Sorenson, 2000). Ball Mountain Lake also includes portions of West River with rare River Cobble Shore (S2) habitat (VANR, 2025). This habitat is found along high-energy rivers throughout Vermont. The habitat includes unstable cobble substrate with sparse vegetation, that is subjected to regular flooding and ice scour. Similar to other wet shore communities, alterations to a river's natural flow regime and invasive species can degrade this habitat (Thompson and Sorenson, 2000).

Table 4. State-Listed Conservation Species Potentially Occurring within the Ball Mountain Lake Federal Fee Boundary

Taxa	Common Name	Scientific Name	State Ranking	State Status
Beetles	Boulder-beach tiger beetle	<i>Cicindela acocisconensis</i>	S1	-
Freshwater Mussels	Brook floater	<i>Alasmidonta varicosa</i>	S1	Endangered
	Eastern pearlshell	<i>Margaritifera margaritifera</i>	S2	Threatened
	Triangle floater	<i>Alasmidonta undulata</i>	S3	-
	Creeper	<i>Strophitus undulatus</i>	S3	-
Reptiles	Wood turtle	<i>Glyptemys insculpta</i>	S3	-
Plants	Shore sedge	<i>Carex lenticularis</i>	S3	-
	Low sand cherry	<i>Prunus pumila</i> var. <i>depress</i>	S2	-
	Canada burnet	<i>Sanguisorba canadensis</i>	S2	-
	Dwarf bilberry	<i>Vaccinium caespitosum</i>	S2	-

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended, promotes the conservation and protection of fisheries resources of the United States, and facilitates long-term protection of Essential Fish Habitat (EFH). Section 305(b)(2) of the MSA requires Federal agencies to consult with the National Oceanic & Atmospheric Administration (NOAA)'s National Marine Fisheries Service (NMFS) on actions that may adversely affect EFH (16 U.S.C. 1855(b)(2)). EFH is broadly defined as "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity". The NOAA Fisheries EFH Mapper was used to identify EFH-managed species and Habitat of Particular Concern within the project area. EFH for Atlantic salmon (*Salmo salar*) was identified within the West River; no Habitat of Particular Concern was identified within the Ball Mountain Lake federal fee boundary (NOAA, 2026).

3.7.1 No Action Alternative

The No Action Alternative will result in no impacts to threatened and endangered species and EFH for federally managed species. The No Action Alternative would have no effect on threatened and endangered species and migratory birds. Federally threatened and endangered species and state conservation species would continue to be managed under the existing 1977 MP. The No Action Alternative would not adversely affect EFH for Atlantic salmon.

3.7.2 Proposed Action

The Proposed Action will result in no impacts to federal and state-listed species. USACE has made a no effect determination for the Proposed Action for all federally listed or proposed threatened, endangered, or candidate species that may occur within Ball Mountain Lake. The implementation of the 2026 MP would not result in construction or ground-disturbing activities. No direct or indirect impacts would occur to federal and state-listed species. The proposed action would not affect any species or suitable habitat that may occur within Ball Mountain Lake.

Any future activities that could potentially result in impacts to federally listed species will be coordinated with USFWS under Section 7 of the Endangered Species Act.

The Proposed Action would not adversely affect Atlantic Salmon EFH. No direct or indirect impacts would occur to EFH, as the 2026 MP would not result in construction or ground-disturbing activities. Any future activities that could potentially result in adverse effects to EFH for federally managed species will be consulted with NMFS under Section 305(b)(2) of the MSA.

3.8 INVASIVE SPECIES

Refer to Chapter 2.7.4 for information on the existing condition of invasive species at Ball Mountain Lake in the 2026 MP.

3.8.1 No Action Alternative

The No Action Alternative will have a minor, long-term adverse effect on invasive species management. The 2026 MP would not be implemented, and the project would continue to utilize the 1977 MP. As a result, no changes to existing conditions would occur and land management would not be compatible with current invasive species management needs.

3.8.2 Proposed Action

The Proposed Action will result in minor, long-term beneficial impacts to invasive species management. The reclassification of lands and improvement of resource management objectives associated with implementation of the 2026 MP will allow for more effective invasive species management. PO lands will implement invasive species control and management as appropriate. WM lands will pursue various invasive species management programs, as available. In addition to land reclassification, the 2026 MP includes natural resources management objectives which promote the management of lands and waters to reduce the spread of invasive, non-native, and aggressively spreading native species.

3.9 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

For information on the existing conditions of Hazardous, Toxic, and Radioactive Waste (HTRW) at Ball Mountain Lake, please refer to Chapter 2.8 of the 2026 MP.

3.9.1 No Action Alternative

The No Action Alternative will result in no impacts to HTRW resources. Under the No Action Alternative, the 2026 MP would not be implemented and there would be no changes to the existing 1977 MP. No impacts to HTRW resources would occur as no HTRW resources or facilities are located within or in the immediate vicinity of Ball Mountain Lake.

3.9.2 Proposed Action

The Proposed Action will result in no impacts to HTRW resources. Under the Proposed Action, the 2026 MP would be implemented, and no construction or ground-disturbing activities would occur. No impacts to HTRW resources would occur as no HTRW resources or facilities are located within or in the immediate vicinity of Ball Mountain Lake.

3.10 HEALTH AND SAFETY

For information on the existing conditions of health and safety at Ball Mountain Lake, please refer to Chapter 2.9 of the 2026 MP.

3.10.1 No Action Alternative

The No Action Alternative will result in no impacts to health and safety. Under the No Action Alternative, the 2026 MP would not be implemented and there would be no changes to the existing 1977 MP.

3.10.2 Proposed Action

The Proposed Action will result in no impacts to health and safety. The implementation of the 2026 MP will result in no construction or ground-disturbing activities that may impact health and safety.

3.11 AESTHETIC RESOURCES

For information on the existing conditions of aesthetic resources at Ball Mountain Lake, please refer to Chapter 2.10 of the 2026 MP.

3.11.1 No Action Alternative

The No Action Alternative will result in no impacts on aesthetic resources. No revisions to the 1977 MP would occur, and no changes would occur to existing aesthetic resources.

3.11.2 Proposed Action

The Proposed Action may result in minor, long-term beneficial impacts to aesthetic resources. The proposed action includes an increase in LDR lands. Future management of LDR lands includes minimal development to reduce erosion and improve aesthetics. Benefits to aesthetic resources may occur due to less disturbance of aesthetic natural areas. The 2026 MP also includes natural resources management objectives to reduce activities which disturb the scenic beauty and aesthetics of the lake.

3.12 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

Chapter 2.11 of the 2026 MP provides prehistoric and historic background discussions for the Ball Mountain Lake area as well as a summary regarding previous cultural resources investigations.

3.12.1 No Action Alternative

The No Action Alternative will result in no impacts to existing cultural, historical, or archaeological resources. Ball Mountain Lake would continue to be managed according to the 1977 Master Plan. No impacts on cultural, historical, or archaeological resources is anticipated as a result of implementing the No Action Alternative.

3.12.2 Proposed Action

The Proposed Action of adopting and implementing the revised MP has no potential to cause effects to historic properties. Impacts to historic properties and cultural and archaeological resources were considered throughout the MP revision process and during the refinement of land use reclassifications. This MP revision does not propose, authorize, or permit any ground disturbing activities. The changes in this MP revision, including changes in land use classifications, do not have the potential to effect historic properties, assuming such historic properties were present.

Therefore, USACE has complied with its obligations under the NHPA, as amended. A copy of the draft EA will be provided to the Elnu Abenaki Tribe, the Wampanoag Tribe of Gay Head (Aquinnah), the Narragansett Indian Tribe, and the Vermont State Historic Preservation Officer (SHPO).

3.13 SOCIOECONOMICS AND DEMOGRAPHICS

For more information on the existing conditions of socioeconomics and demographics, please refer to Chapter 2.12 of the 2026 MP.

3.13.1 No Action Alternative

The No Action Alternative will result in no impacts to existing socioeconomics or demographics. The 2026 MP would not be implemented, and Ball Mountain Lake would continue management under the 1977 MP.

3.13.2 Proposed Action

The Proposed Action will result in no impacts to existing socioeconomics or demographics. Under the Proposed Action, the 2026 MP would result in no construction or changes that would affect local socioeconomic or demographic factors. No activities proposed in the 2026 MP would impact the changes the local economy or local populations in any perceivable way.

3.14 RECREATION

For information on the existing conditions of recreation and the zone of influence for Ball Mountain Lake, please refer to Chapter 2.13 of the 2026 MP.

3.14.1 No Action Alternative

The No Action Alternative would result in moderate, long-term adverse impacts to recreation. The 2026 MP would not be implemented, and Ball Mountain Lake would continue management under the 1977 MP. As a result, the 1977 MP would not reflect current recreation needs at Ball Mountain Lake.

3.14.2 Proposed Action

The Proposed Action would result in moderate, long-term beneficial impacts to recreation from updated resource management objectives and classifications. The 2026 MP would result in increased HDR and LDR land to reflect current recreation needs.

SECTION 4: COMPLIANCE WITH ENVIRONMENTAL LAWS

This EA has been prepared to satisfy the requirements of all applicable federal environmental laws, regulations, and executive orders. The adoption and implementation of the 2026 MP is consistent with USACE's Environmental Operating Principles. The following is a list of applicable environmental laws and regulations that were considered in the planning of this project and the status of compliance with each:

Federal Statutes

1. *Archaeological Resources Protection Act of 1979, as amended, 16 U.S.C 470aa et seq.*

Compliance: The Proposed Action will not result in any ground disturbing activities.

2. *Preservation of Historic and Archeological Data Act of 1974, as amended, 54 U.S.C 312501 et seq.*

Compliance: In progress. A copy of the draft EA will be released to the SHPO, Elnu Abenaki Tribe, and the Wampanoag Tribe of Gay Head (Aquinnah).

3. *American Indian Religious Freedom Act of 1978, 42 U.S.C 1996.*

Compliance: The Proposed Action will not impede access by Native Americans to sacred sites, possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. A copy of the draft EA will be released to the Elnu Abenaki, Wampanoag Tribe of Gay Head (Aquinnah), and the Narragansett Indian Tribe.

4. *Clean Air Act, as amended, 42 U.S.C 7401 et seq.*

Compliance: Existing reservoir operation and maintenance is compliant with the Clean Air Act and will not change with the 2026 MP. A General Conformity Determination is not required since the emissions of either alternative are negligible at best and are otherwise *de minimis*.

5. *Clean Water Act of 1977 (Federal Water Pollution Control Act Amendments of 1972), 33 U.S.C 1251 et seq.*

Compliance: A state water quality certification pursuant to Section 401 of the Clean Water Act is not required for the 2026 MP. There will be no change in the existing management of the reservoir that will impact water quality, but minor, long-term benefits to water quality are expected from the Proposed Action.

6. *Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq.*

Compliance: Current lists of threatened or endangered species were obtained through the USFWS IPaC on May 14, 2025. USACE made a no effect determination for the monarch butterfly, tri-colored bat, and northern long-eared bat; therefore, no further consultation with USFWS is required.

7. *Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 et seq.*

Compliance: In-progress. USACE will provide a copy of the draft EA to USFWS and VT DFW.

8. *Migratory Bird Treaty Act of 1918, as amended, 16 U.S.C. 703 et seq.*

Compliance: The Proposed Action will not result in any take of any species protected under the Migratory Bird Treaty Act.

9. *National Historic Preservation Act of 1966, as amended, 54 U.S.C. 300101 et seq.*

Compliance: USACE has determined that the Proposed Action is primarily administrative and does not have the potential to impact historic properties at Ball Mountain Lake. Pursuant to 36 Code of Federal Register (CFR) 800.3(a)(1), USACE has satisfied its responsibilities to consider the effects of the Proposed Action on historic properties and has no further obligations under Section 106 of the NHPA. USACE remains in compliance with Section 106 of the NHPA.

10. *Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C 3001-3013, 18 U.S.C 1170*

Compliance: Regulations implementing NAGPRA will be followed if discovery of human remains and/or funerary items occur during implementation of this project.

11. *National Environmental Policy Act of 1969, as amended, 42 U.S.C 4321 et seq.*

Compliance: In-progress. Preparation of an EA signifies partial compliance with NEPA. Full compliance shall be noted at the time the FONSI is issued.

12. *Bald and Golden Eagle Protection Act, 16 U.S.C. 668 et seq.*

Compliance: The Proposed Action does not involve take, sale, purchase, or transport of any Bald or Golden Eagles.

13. *National Invasive Species Act (NISA), as amended, 16 U.S.C. 4701 et seq.*

Compliance: The Proposed Action will not promote or cause the introduction or spread of invasive species into waters of the United States.

14. *Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. 1801 et seq.*

Compliance: Ball Mountain Lake includes EFH for Atlantic salmon. The Proposed Action will not adversely affect EFH, therefore no consultation with the NMFS is required.

Executive Orders (EO)

1. *EO 11593, Protection and Enhancement of the Cultural Environment, 13 May 1971*

Compliance: In-progress. A copy of the draft EA will be released to the Connecticut's SHPO.

2. *EO 11988, Floodplain Management, 24 May 1977 amended by EO 12148, 20 July 1979.*

Compliance: The Proposed Action will have no impacts to existing floodplains at Ball Mountain Lake.

3. *EO 11990, Protection of Wetlands, 24 May 1977*

Compliance: This Proposed Action does not propose construction or future activities in wetlands.

4. *EO 13007, Indian Sacred Sites, 24 May 1996*

Compliance: Access to and ceremonial use of Indian sacred sites by Indian religious practitioners will be allowed and accommodated. No adverse effects to the physical integrity of such sacred sites will occur.

5. *EO 13045, Protection of Children from Environmental Health Risks and Safety Risks. 21 April 1997*

Compliance: The Proposed Action will not create a disproportionate environmental health or safety risk for children.

6. *EO 13112, Invasive Species, 8 December 2016.*

Compliance: The Proposed Action will not promote or cause the introduction or spread of invasive species.

7. *EO 13175, Consultation and Coordination with Indian Tribal Governments, 6 November 2000*

Compliance: In-progress. Consultation with Indian Tribal Governments, where applicable, and consistent with executive memoranda, DOD Indian policy, and USACE Tribal Policy Principles signifies compliance.

8. *EO 13186, Migratory Bird Conservation, 10 January 2001*

Compliance: The Proposed Action would not result in a measurable negative effect on migratory bird populations.

Executive Memoranda

1. *Memorandum for the Heads of Agencies from CEQ, Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing NEPA, 11 August 1980*

Not applicable. The 2026 MP does not impact Prime Farmland present on Ball Mountain Lake project lands.

2. *Memorandum for the Heads of Executive Departments and Agencies from the President of the United States, Memorandum on Government-to-Government Relations with Native American Tribal Governments, 29 April 1994.*

Compliance: In-progress. The USACE will release the draft EA to Federally Recognized Indian Tribes.

SECTION 5: PUBLIC AND AGENCY COORDINATION

In accordance with NEPA of 1969, as amended, the USACE initiated public involvement and agency scoping activities to solicit input on the proposed revision of the 1977 MP, as well as identifying any issues related to the Proposed Action.

An initial public open house was held for the Ball Mountain Lake Master Plan revision at the Jamaica Town Hall, 3735 VT Route 30, Jamaica, VT 05343 on April 15, 2025, from 4:00-6:00 p.m. The purpose of this open house was to provide attendees with information regarding the MP revision process as well as to provide them with the opportunity to provide initial comments on the Proposed Action. The initial comment period remained open for 30 days from April 15, 2025, to May 16, 2025. During the 30-day comment period, USACE received 5 comments. These comments and their USACE responses can be found in Appendix E of the 2026 MP.

The draft 2026 MP and EA will be released to the public, tribes, and agencies for another 30-day comment period. The USACE will hold a public open house following the release of the draft 2026 MP and EA. Comments received during this period will be included within Appendix E.

Appendix A to this EA will be updated to include: the news release; agency coordination letters; tribal coordination letters; and any agency or tribal comments. Appendix E will include all comments received for the 2026 MP. The draft EA will be coordinated with the following agencies, stakeholders, and tribal governments:

Federal

National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS)

U.S. Environmental Protection Agency

U.S. Fish and Wildlife ServiceState

Vermont Agency of Natural Resources (VANR):

Vermont Department of Environmental Conservation (VT DEC)

Vermont Department of Forests, Parks, and Recreation (VT FPR)

Vermont Department of Fish and Wildlife (VDFW)

Vermont Division for Historic Preservation, State Historic Preservation Officer (SHPO)

Tribes

Elnu Abenaki Tribe

Wampanoag Tribe of Gay Head (Aquinnah)

Narragansett Indian Tribe

SECTION 6: REFERENCES

NOAA. (2026). Essential Fish Habitat Mapper. Accessed on March, 31, 2026, from <https://www.habitat.noaa.gov/apps/efhmapper/?page=NEMA-Map>

Thompson, E.H., and Sorenson, E.R. (2000). Wetland, Woodland Wildland. *A Guide to the Natural Communities of Vermont*. Vermont Department of Fish and Wildlife and the Nature Conservancy.

U.S. Army Corps of Engineers (USACE). (1977). Ball Mountain Lake Master Plan for Recreation Resources Development.

Vermont Agency of Natural Resources (VANR). (2025). Natural Resources Atlas. Accessed on October 7, 2025, from <https://anrmaps.vermont.gov/websites/anra5/>

Vermont Department of Fish and Wildlife (VDFW). (2020). Explanation of Legal Status and Information Ranks. *Vermont Natural Heritage Inventory*. Accessed on October 7, 2025, from <http://vtfishandwildlife.com/document/explanation-legal-status-and-information-rankspdf>

ATTATCHMENT A – COORDINATION

March 20, 2025
Release No. MA 2025-003

Contacts:
T.J. Atwell, 978-739-6932
Cenae-pa@usace.army.mil

CENAE-BallMountain-
Townshend@usace.army.mil

USACE to host Ball Mountain Master Plan public meeting, open comments

CONCORD, Mass. – The U.S. Army Corps of Engineers (USACE) will host an open house on Tuesday, April 15, 2025, to kick off a process to revise the 1977 Ball Mountain Lake Master Plan. The open house will be held from 4:00-6:00 p.m. at the Jamaica Town Hall, 3735 VT Route 30, Jamaica, VT 05343. During the open house session, there will be no formal presentation. The public is invited to visit at any point during the 4:00-6:00 p.m. time frame to interact with USACE team members. Team members will be stationed around the room and can share information about the revision process, provide the general schedule, and gather initial feedback from the public.

Master Plan Overview

The Master Plan is defined as the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the water resource development project. It defines "how" USACE will manage the resources for public use and conservation.

The current Ball Mountain Lake Master Plan, last approved in 1977, needs revision to address changes in regional land use, population, outdoor recreation trends, and the USACE management policy. Key topics to be discussed in the revised Master Plan include revised land use classifications, new natural and recreational resource management objectives, recreation facility needs, and special issues such as invasive species management and threatened and endangered species habitat. The Master Plan revision WILL NOT address the technical and operational aspects of the lake related to flood risk management or the water conservation missions of the project.

Initial Comments

An initial 30-day comment period will begin April 15, 2025, and end May 16, 2025. The public can send comments, suggestions, and concerns during this time. Comments must be submitted in writing at the open house or digitally via the comment form on the Master Plan Revision web page: www.nae.usace.army.mil/missions/recreation/ball-mountain-lake/ball-mountain-lake-master-plan/. The web page also contains a presentation which will be running during the open house. The presentation provides a schedule as well as details on an additional comment period after the draft report is released (currently scheduled for July 2026).

About Ball Mountain Lake

Ball Mountain Lake, is located in Jamaica Vermont, on the West River, a tributary to the Connecticut River, and is part of a network of flood damage reduction projects in the Upper Connecticut River Basin. Construction of the dam began in May 1957 and was completed in October 1961 at a cost of \$11 million. The project features an earthfill dam with stone slope protection 915-feet long and 265-feet high; a gated, 864-foot-long circular concrete conduit with a diameter of 13.5 feet; and a chute spillway cut in rock with a 235-foot-long concrete weir. The weir's crest elevation is 35 feet lower than the top of the dam.

Construction of the recreational facilities at the reservoir began in June 1975 and were completed in June 1977. Winhall Brook Camping Area being one of the main recreational attractions at Ball Mountain Lake offers 111 campsites comprised of 14 Lean-to shelters and 23 water and electric sites and tent sites. The reservoir provides flood protection to the downstream communities in the West River Valley, including Jamaica, Townshend (particularly the West Townshend and Harmonyville sections), and Dummerston. In conjunction with other reservoirs in the Connecticut River Basin, Ball Mountain Lake also reduces flood stages on the Connecticut River.

Ball Mountain Lake has a permanent pool of 75 acres with a stage of 65 feet. The flood storage area of the project totals 810 acres and extends 6.5 miles upstream through Londonderry. The project and associated lands cover 1,227 acres. Ball Mountain Lake can store up to 17.8 billion gallons of water for flood control purposes. This is equivalent to 5.9 inches of water covering its drainage area of 172 square miles.

-End-



US Army Corps
of Engineers®

Comment Form Instructions
Public Meeting April 15, 2025

Master Plan Revision Ball Mountain Lake

The U.S. Army Corps of Engineers is in the process of revising the Ball Mountain Lake Master Plan. The Master Plan revision will guide the land and recreational management of the federally owned property that make up the flood storage area for the next 25 years. Management activities include protecting natural and cultural resources, providing access to public land and water recreation, protecting the public, and ensuring reservoir and dam operations. Pertinent information and a copy of the current master plan and land use map can be found on the USACE website below. To add your comments, ideas, or concerns about the future land and recreational management for the Master Plan, please submit comments using any of the following methods:

Fill out and return a comment form available below or at the following website:

www.nae.usace.army.mil/missions/recreation/ball-mountain-lake/ball-mountain-lake-master-plan/

- Provide comments in an email message or use the comment form and send to: CENAE-BallMountain-Townshend@usace.army.mil
- Provide comments in a letter or use comment form and send via mail to:

USACE Ball Mountain Lake
c/o Project Manager
88 Ball Mountain Lane
Jamaica, VT 05343

- Drop off or mail written comments to the project office at the address above.

The **30-day comment period is April 15 through May 15, 2025**. Please provide written comments via the methods above. Your input into the Master Plan revision and related environmental concerns under the National Environmental Policy Act (NEPA) is key to developing a successful Master Plan for the lake project. Please write your questions, comments, or suggestions in on the next page and mail or e-mail them to the address above during the comment period. **Comments due by May 15, 2025**. Thank you for your participation!

Questions, comments, or suggestions?

[illegible]

Optional Information (used for mailing list to keep you informed and will not be used for any other purpose):

Name: _____

Affiliation: _____

Address: _____

City: _____ State: _____

Zip Code: _____ Email: _____



Scan QR Code



**DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD MA 01742-2751**

March 17, 2025

Planning Division
Environmental Branch

Mr. Timothy Timmermann
Office of Environmental Review
EPA New England-Region 1
5 Post Office Square, Suite 100
Mail Code OEP 06-3
Boston, MA 02109-3912

Dear Mr. Timmermann:

The U.S. Army Corps of Engineers, New England District (USACE) is proposing revisions to the 1977 Ball Mountain Lake Master Plan. Ball Mountain Lake is a multi-purpose project located on the West River in Jamaica, Vermont. Project construction was completed in 1961. The project is authorized for flood control in the Upper Connecticut River Basin through the Flood Control Act of 1938. The project is authorized for development and use of the reservoir area for public recreation, wildlife management, stewardship, and other purposes through the Flood Control Act of 1944. The purpose of this letter is to invite you or a member of your staff to an informational open house, and solicit your initial comments on the Ball Mountain Lake Master Plan.

The current Ball Mountain Lake Master Plan, last approved in 1977, needs revision to address changes in regional land use, population, outdoor recreation trends, and USACE management policy. A land classification map is enclosed to show current land classifications under the 1977 Ball Mountain Lake Master Plan (Attachment 1). Key topics to be discussed in the revised Master Plan include revised land use classifications, new natural and recreational resource management objectives, recreation facility needs, and special issues such as invasive species management and threatened and endangered species habitat. The Master Plan will not address the technical and operational aspects of the lake related to flood risk management or the water conservation missions of the project.

USACE will be preparing an Environmental Assessment (EA) to address impacts to the environment. An open house will occur on April 15, 2025 to gather preliminary comments on the proposed project. The open house will be held from 4:00 – 6:00pm at the Jamaica Town Hall, 3735 VT Route 30, Jamaica, Vermont 05343. The purpose of the open house is to explain the master plan process, general schedule, and gather initial feedback.

Additional information on the Ball Mountain Lake Master Plan can be found at www.nae.usace.army.mil/missions/recreation/ball-mountain-lake/ball-mountain-lake-master-plan/.

USACE is requesting preliminary comments on the proposed action within 30 days of the open house. Comments should include any concerns that need to be addressed during the master plan process specifically with regards to all applicable EPA authorities. A virtual interagency meeting will be available upon request. If you or your staff have any questions about the master plan or require additional information, please contact the lake manager, Alex Cote, at [REDACTED] or by email at [REDACTED]; or the project biologist, Kelsie Dakessian, at [REDACTED] or by email at [REDACTED].

Sincerely,



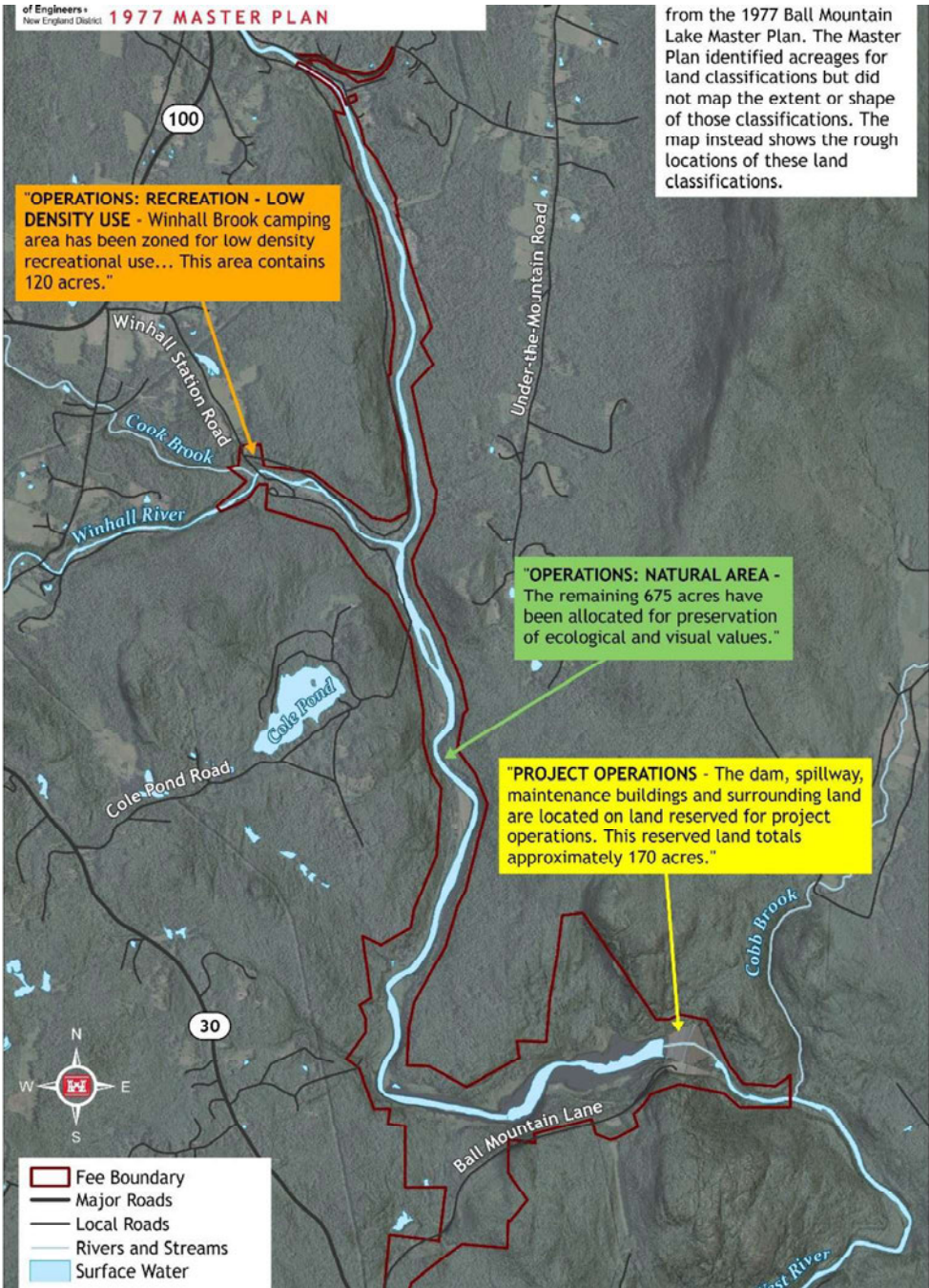
Digitally signed by
LOYD.RICHARD.B.12
74669540
Date: 2025.03.17
09:46:12 -04'00'

Richard B. Loyd
Chief, Environmental Branch

Enclosure

Attachment 1

1977 Ball Mountain Lake Master Plan Classifications





**DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD MA 01742-2751**

March 17, 2025

Planning Division
Environmental Branch

Audrey Mayer, Supervisor
New England Field Office
U.S. Fish and Wildlife Service
Ecological Services
70 Commercial Street, Suite 300
Concord, Massachusetts 03301-5087

Dear Dr. Mayer:

The U.S. Army Corps of Engineers, New England District (USACE) is proposing revisions to the 1977 Ball Mountain Lake Master Plan. Ball Mountain Lake is a multi-purpose project located on the West River in Jamaica, Vermont. Project construction was completed in 1961. The project is authorized for flood control in the Upper Connecticut River Basin through the Flood Control Act of 1938. The project is authorized for development and use of the reservoir area for public recreation, wildlife management, stewardship, and other purposes through the Flood Control Act of 1944. The purpose of this letter is to invite you or a member of your staff to an informational open house, and solicit your initial comments on the Ball Mountain Lake Master Plan.

The current Ball Mountain Lake Master Plan, last approved in 1977, needs revision to address changes in regional land use, population, outdoor recreation trends, and USACE management policy. A land classification map is enclosed to show current land classifications under the 1977 Ball Mountain Lake Master Plan (Attachment 1). Key topics to be discussed in the revised Master Plan include revised land use classifications, new natural and recreational resource management objectives, recreation facility needs, and special issues such as invasive species management and threatened and endangered species habitat. The Master Plan will not address the technical and operational aspects of the lake related to flood risk management or the water conservation missions of the project.

USACE will be preparing an Environmental Assessment (EA) to address impacts to the environment. An open house will occur on April 16, 2025 to gather preliminary comments on the proposed project. The open house will be held from 4:00 – 6:00pm at the Hartland Library, 153 US Route 5, Hartland, Vermont 05048. The purpose of the open house is to explain the proposed study, general schedule, and gather initial feedback.

Additional information on the Ball Mountain Lake Master Plan can be found at www.nae.usace.army.mil/missions/recreation/ball-mountain-lake/ball-mountain-lake-master-plan/.

USACE is requesting preliminary comments on the proposed action within 30 days of the open house. Comments should include any concerns that need to be addressed during the master plan process relative to the Endangered Species Act and the Fish and Wildlife Coordination Act. A virtual interagency meeting will be available upon request. If you or your staff have any questions about the master plan or require additional information, please contact the lake manager, Alex Cote, at [REDACTED] or by email at [REDACTED]; or the project biologist, Kelsie Dakessian, at [REDACTED] or by email at [REDACTED]

Sincerely,

Richard B. Loyd
Chief, Environmental Branch

Enclosure

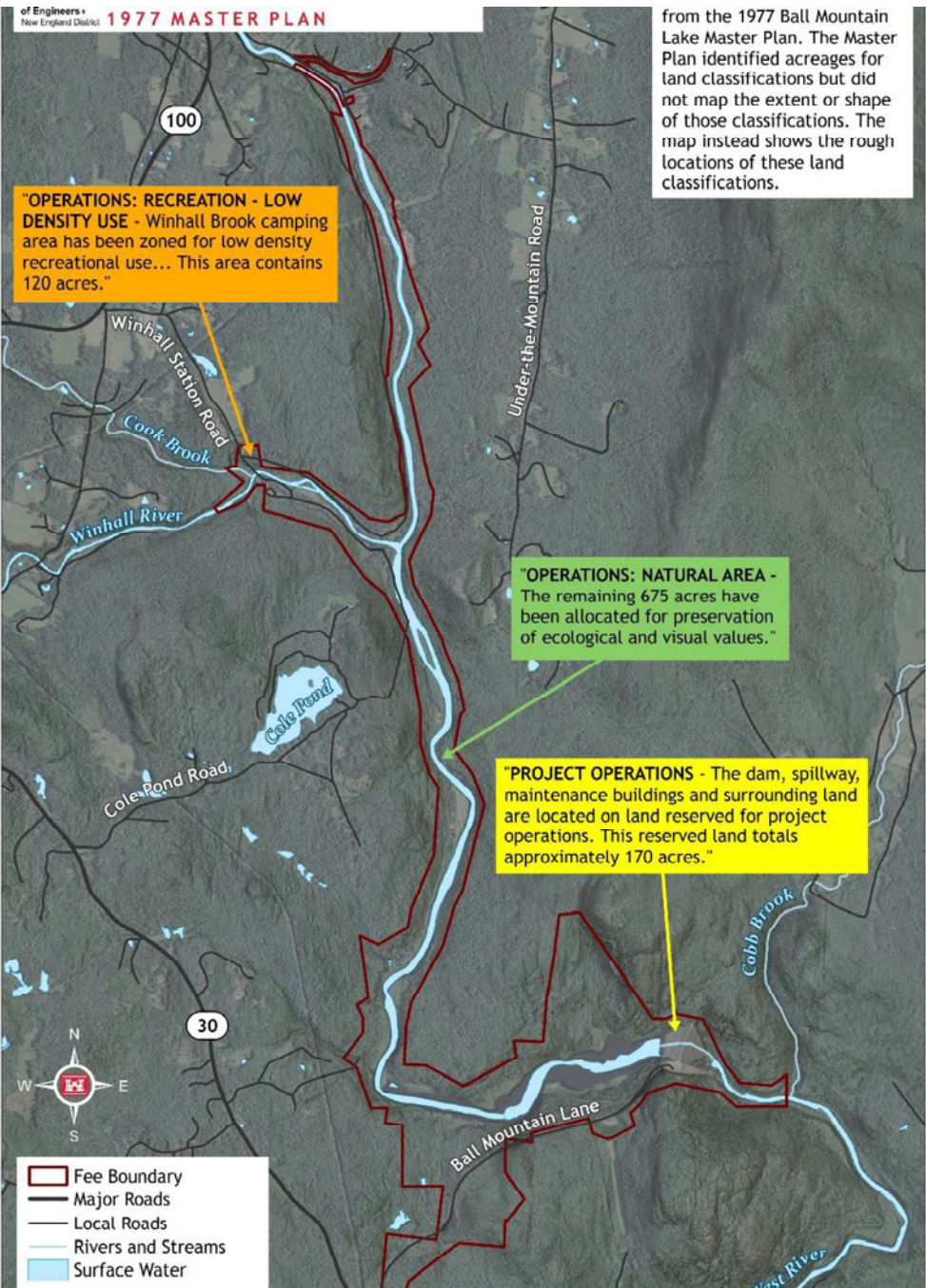
Copies Furnished:

New England Ecological Services Field Office: newengland@fws.gov

David Simmons: [REDACTED]

Attachment 1

1977 Ball Mountain Lake Master Plan Classifications





**DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD**

March 17, 2025

Planning Division
Environmental Branch

Mr. Jason Batchelder, Commissioner
Vermont Agency of Natural Resources
Department of Environmental Conservation
Davis Building – 3rd Floor
One National Life Drive
Montpelier, VT 05620-3522

Dear Mr. Batchelder:

The U.S. Army Corps of Engineers, New England District (USACE) is proposing revisions to the 1977 Ball Mountain Lake Master Plan. Ball Mountain Lake is a multi-purpose project located on the West River in Jamaica, Vermont. Project construction was completed in 1961. The project is authorized for flood control in the Upper Connecticut River Basin through the Flood Control Act of 1938. The project is authorized for development and use of the reservoir area for public recreation, wildlife management, stewardship, and other purposes through the Flood Control Act of 1944. The purpose of this letter is to invite you or a member of your staff to an informational open house, and solicit your initial comments on the Ball Mountain Lake Master Plan.

The current Ball Mountain Lake Master Plan, last approved in 1977, needs revision to address changes in regional land use, population, outdoor recreation trends, and USACE management policy. A land classification map is enclosed to show current land classifications under the 1977 Ball Mountain Lake Master Plan (Attachment 1). Key topics to be discussed in the revised Master Plan include revised land use classifications, new natural and recreational resource management objectives, recreation facility needs, and special issues such as invasive species management and threatened and endangered species habitat. The Master Plan will not address the technical and operational aspects of the lake related to flood risk management or the water conservation missions of the project.

USACE will be preparing an Environmental Assessment (EA) to address impacts to the environment. An open house will occur on April 15, 2025 to gather preliminary comments on the proposed project. The open house will be held from 4:00 – 6:00pm at the Jamaica Town Hall, 3735 VT Route 30, Jamaica, Vermont 05343. The purpose of the open house is to explain the master plan process, general schedule, and gather initial feedback.

Additional information on the Ball Mountain Lake Master Plan can be found at www.nae.usace.army.mil/missions/recreation/ball-mountain-lake/ball-mountain-lake-master-plan/.

USACE is requesting preliminary comments on the proposed action within 30 days of the open house. Comments should include any concerns that need to be addressed during the master plan process. A virtual interagency meeting will be available upon request. If you or your staff have any questions about the master plan or require additional information, please contact the lake manager, Alex Cote, at [REDACTED] or by email at [REDACTED]; or the project biologist, Kelsie Dakessian, at [REDACTED] or by email at [REDACTED]

Sincerely,

Richard B. Loyd
Chief, Environmental Branch

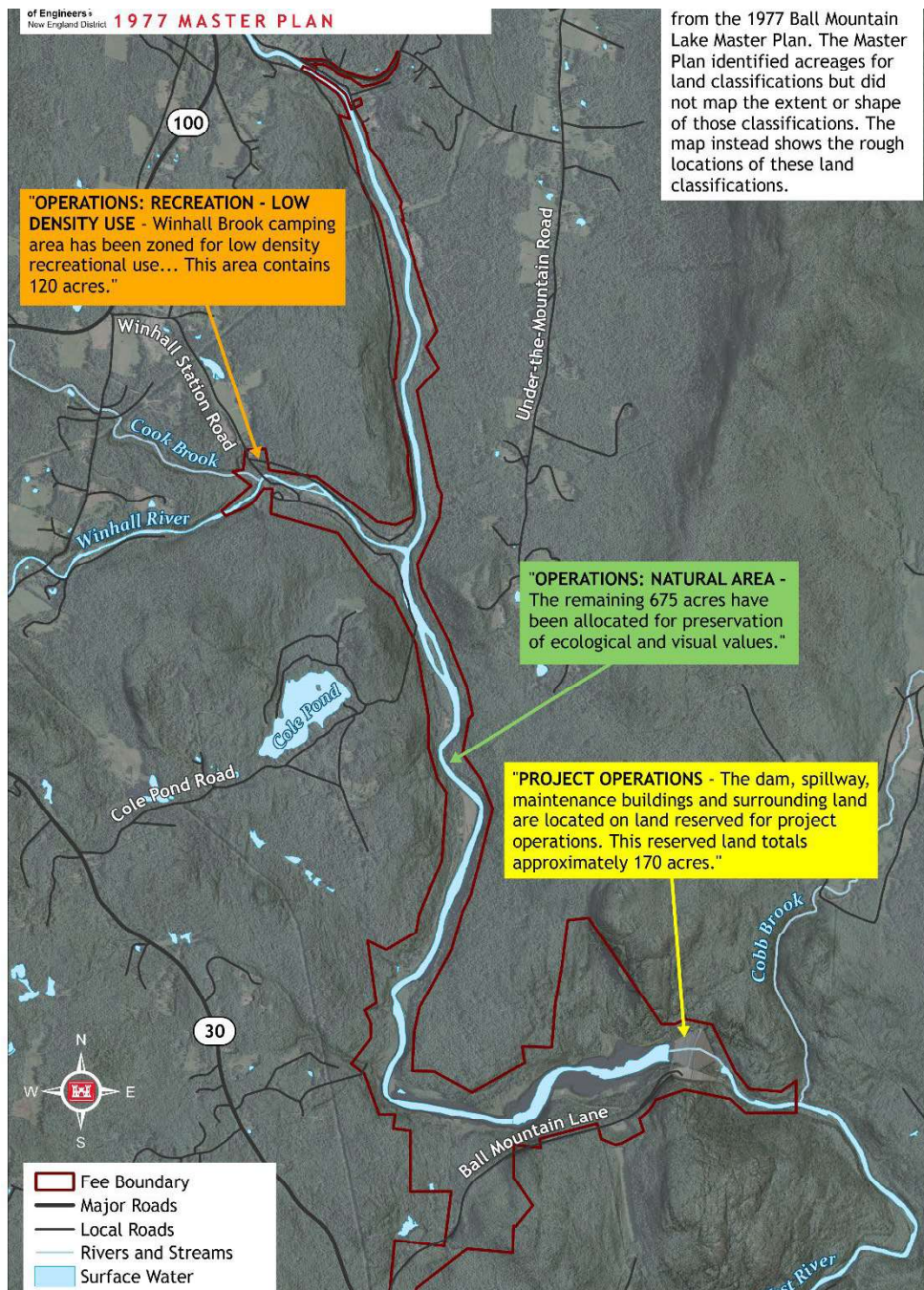
Enclosure

Copies Furnished:

Steve Hanna – [REDACTED]
Betsy Simard – [REDACTED]
Eric Davis – [REDACTED]
Jeff Crocker – [REDACTED]

Attachment 1

1977 Ball Mountain Lake Master Plan Classifications



State of Vermont**Department of Environmental Conservation**

Springfield Regional Office
100 Mineral Street, Suite 303
Springfield, VT 05156-3168

Marie Levesque Caduto
Watershed Planner

www.dec.vermont.gov/water-investment

Agency of Natural Resources

[cell] [REDACTED]

[Email] [REDACTED]

TO: USACE Ball Mountain Lake
Project Manager
88 Ball Mountain Lane
Jamaica, VT 05343

FROM: Marie Levesque Caduto, Watershed Planner, VT Dept. of Environmental Conservation

DATE: 05/14/2025

SUBJECT: USACE Ball Mountain Lake Master Plan Update

Project Background: Ball Mountain dam located in Jamaica VT is within Vermont Watershed Planning Basin 11 – [West, Williams, Saxtons Rivers and Connecticut River Direct Tributaries](#). Vermont's Tactical Basin Plans target strategies and prioritize resources to those actions that will have the greatest influence on surface water protection or restoration. Basin-specific water quality goals, objectives, strategies, and projects described in these Plans aim to protect public health and safety ensure public use and enjoyment of Vermont waters and their ecological health as set forward in the Vermont Surface Water Management Strategy and the Vermont Water Quality Standards.

Beyond the benefits of the flood control functions of the Ball Mountain dam, the waters and lands are important assets in the West River watershed for water quality protection, wildlife habitat and recreation, their management and use are of interest to the State. Following are Watershed Planning Program comments and concerns for consideration in the development of the updated Ball Mountain Master Plan.

Comments on development of the Ball Mountain Master Plan:**Providing riparian habitats –**

The river corridor above and below the Ball Mountain dam provides River Cobble Shore (RCS) habitat. River Cobble Shore habitat is dependent upon the natural processes of flooding, wave action, and ice scour. As such, they all occur as small patches that are restricted to areas where these processes are focused. Since they are maintained in an open state, these natural community types provide a specialized habitat for animals and plants. Anything that prevents these natural processes from occurring can jeopardize the integrity and continued existence of the SGCN they harbor. This natural community often supports heavy recreational use, and trampling of vegetation is a major concern. (VT [Wildlife Action Plan](#) 2015)

RCS habitat is ranked as S2, Rare, by VT Dept. of Fish & Wildlife. RCS habitat below the Ball Mountain dam supports a number of Rare, Threatened and Endangered species and Species of Greatest Conservation Need, several in this reach of the West River. These include:

- Canada Burnet G5, S2 SGCN
- Shore Sedge G5, S3
- Low Sand Cherry G5T5, S2, SGCN
- Dwarf Bilberry G5, S2, SGCN

- Boulder-beach Tiger Beetle G3, S1, SGCN, RSGCN
- Wood Turtle G2G3, S3, SC, SGCN, RSGCN

also inhabit this area.

Protection of this natural community should be a priority in the Master Plan. Restoration of degraded sites and careful management of flows to promote natural conditions should be exercised during all non-flood conditions.

Rare, Threatened and Endangered Aquatic Species –

Additionally, and of greatest concern are the populations of rare mussels throughout the lower West River

- Brook Floater G3, S1, SGCN, RSGCN, S-E
- Eastern Pearlshell G4, S2, SGCN, RSGCN, S-T (u/s)
- Triangle Floater G4, S3, RSGCN
- Creeper G5, S3

The USFWS States that State endangered “Brook floaters depend on streams with clean, flowing water and substrate that they can anchor into while filter feeding, and they are vulnerable to pollution and climate change.”

Sediment deposition in mussel bed habitat is a stressor on sensitive populations. Careful management of sediment transport and deposition should be a priority of dam operations during non-flood conditions.

303d Listed Impaired Waters – [Waters altered by flow regulation](#)

The West River below the Ball Mountain dam, the reach described as "West River, Townshend Dam to Grassy Brook" has the problem of "USACOE dam operation, impounded waters release results in elevated temperatures downstream" and the pollutant(s), "TEMPERATURE", have caused it to not meet the Vermont Water Quality Standards.

To come into compliance with Vermont Water Quality Standards, strategies to address this impairment should be developed and implemented as part of the Master Plan

Cobb Brook constriction –

The recreation bridge over the mouth of Cobb Brook is a flow constriction. Stone placed at the bridge abutments constrict the channel to just 21% of bank-full-width. This constriction captures further material preventing it from moving into the West River. It also increases flow velocity limiting upstream fish passage.

Plans for future dam maintenance that will use the West River Trail for access should include remediating this constriction to provide improved aquatic organism passage and sediment transport.

Tactical Basin Plan Strategies related to Ball Mountain lands –

Strategies included in the 2021 TBP include:

- Work to control riparian and aquatic invasive plants
 - In the Ball Mountain Lake area Japanese Knotweed is pervasive and thrives in disturbed areas. Control and spread prevention should be actively pursued.
- Protect and restore riparian corridors
 - Establishing and maintaining riparian vegetation and protecting riparian buffers from the impacts of recreation should be included in all project development plans.
- Monitor habitat conditions & effects of stressors on habitats; restore critical habitats or ameliorate threats when/where opportunities arise to secure/restore numbers of SGCN populations & targeted abundance levels
 - River Cobble Shore habitats and mussel bed habitats should be protection and restoration priorities.
- Improve flow management at hydroelectric and flood control facilities to address water quality impairment, sediment transport and to benefit downstream species
 - During non-flood operations flow management should work to address the temperature impairment in the West River.

Recreation –

Erosion is observable from gravel roads, camp sites and trails adjacent to the rivers and stream on Ball Mountain Lake lands. Stormwater control practices should be implemented to mitigate soil loss into these waters and riparian buffers should be installed and maintained in these locations.

Trails near River Cobble Shore habitat should not allow access through and into the habitat to access the water. Strategies to block access to these areas should be implemented.



**DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD**

March 17, 2025

Planning Division
Environmental Branch

Ms. Andrea Shortsleeve, Commissioner
Vermont Fish and Wildlife Department
1 National Life Drive
Davis 2
Montpelier, VT 05620-3702

Dear Ms. Shortsleeve:

The U.S. Army Corps of Engineers, New England District (USACE) is proposing revisions to the 1977 Ball Mountain Lake Master Plan. Ball Mountain Lake is a multi-purpose project located on the West River in Jamaica, Vermont. Project construction was completed in 1961. The project is authorized for flood control in the Upper Connecticut River Basin through the Flood Control Act of 1938. The project is authorized for development and use of the reservoir area for public recreation, wildlife management, stewardship, and other purposes through the Flood Control Act of 1944. The purpose of this letter is to invite you or a member of your staff to an informational open house, and solicit your initial comments on the Ball Mountain Lake Master Plan.

The current Ball Mountain Lake Master Plan, last approved in 1977, needs revision to address changes in regional land use, population, outdoor recreation trends, and USACE management policy. A land classification map is enclosed to show current land classifications under the 1977 Ball Mountain Lake Master Plan (Attachment 1). Key topics to be discussed in the revised Master Plan include revised land use classifications, new natural and recreational resource management objectives, recreation facility needs, and special issues such as invasive species management and threatened and endangered species habitat. The Master Plan will not address the technical and operational aspects of the lake related to flood risk management or the water conservation missions of the project.

USACE will be preparing an Environmental Assessment (EA) to address impacts to the environment. An open house will occur on April 15, 2025 to gather preliminary comments on the proposed project. The open house will be held from 4:00 – 6:00pm at the Jamaica Town Hall, 3735 VT Route 30, Jamaica, Vermont 05343. The purpose of the open house is to explain the master plan process, general schedule, and gather initial feedback.

Additional information on the Ball Mountain Lake Master Plan can be found at www.nae.usace.army.mil/missions/recreation/ball-mountain-lake/ball-mountain-lake-master-plan/.

USACE is requesting preliminary comments on the proposed action within 30 days of the open house. Comments should include any concerns that need to be addressed during the master plan process relative to the Fish and Wildlife Coordination Act. A virtual interagency meeting will be available upon request. If you or your staff have any questions about the master plan or require additional information, please contact the lake manager, Alex Cote, at [REDACTED] or by email at [REDACTED]; or the project biologist, Kelsie Dakessian, at [REDACTED]

[REDACTED] or by email at [REDACTED].

Sincerely,



Richard B. Loyd
Chief, Environmental Branch

Enclosure

Copies Furnished:

Tyler Brown - Tyler.Brown@vermont.gov

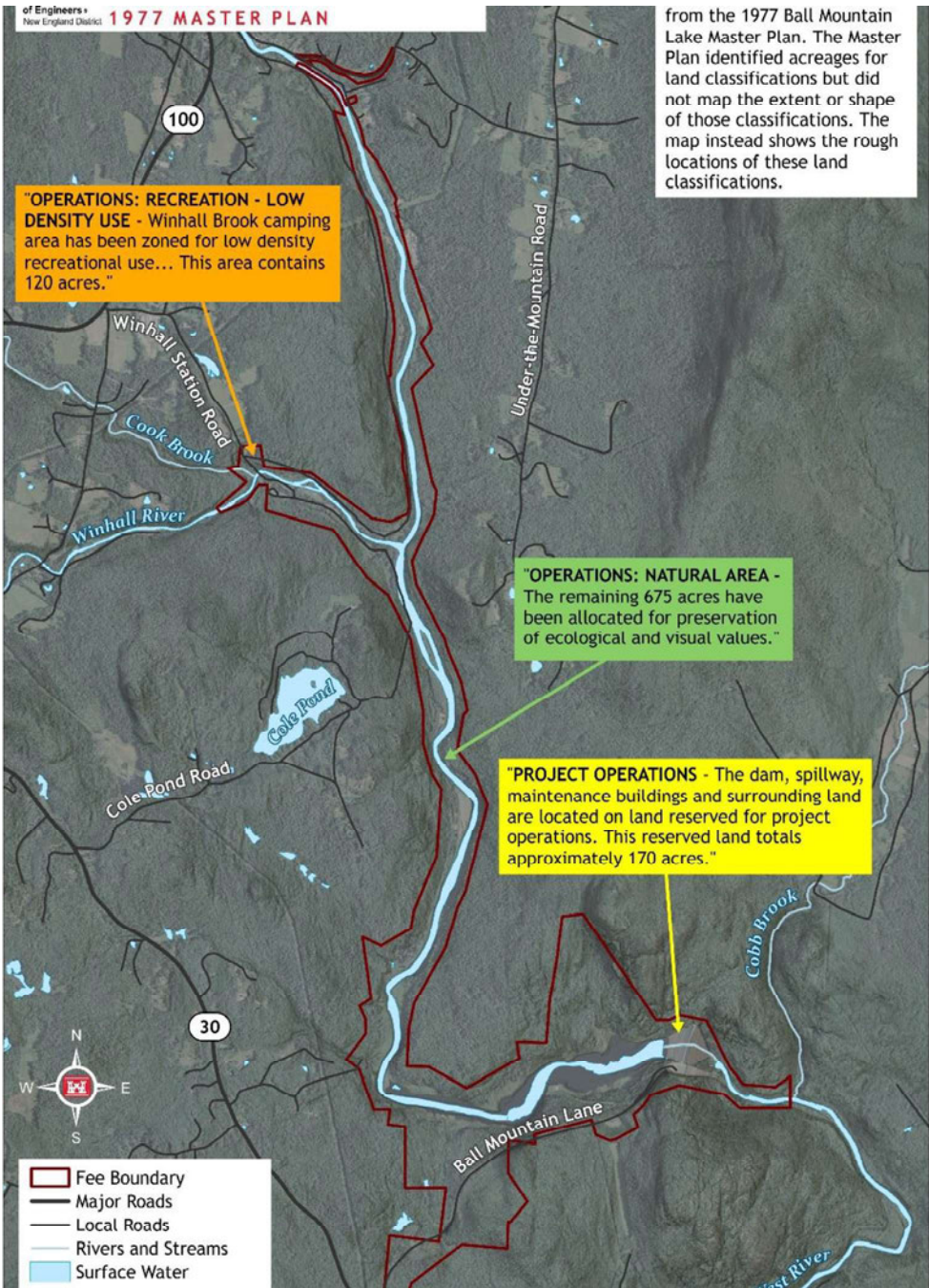
Ryan Smith - Ryan.Smith@vermont.gov

Lael Will - Lael.Will@vermont.gov

Courtney Buckley - Courtney.Buckley@vermont.gov

Attachment 1

1977 Ball Mountain Lake Master Plan Classifications





State of Vermont
Fish & Wildlife Department
100 Mineral Street, Suite 302
Springfield, VT 05156-3168
www.vtfishandwildlife.com

Agency of Natural Resources

[cell] [REDACTED]
[fax] [REDACTED]
[email] [REDACTED]

Richard B. Loyd Chief, Environmental Branch
Department of the Army, US Army Corps of Engineers
New England District

05/02/2025

Pursuant to the Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661-666(e)), the Vermont Fish and Wildlife Department, Fisheries Division, respectfully requests the US Army Corps of Engineers consider the below comments when developing a revised version of the 1977 Ball Mountain Lake Master Plan.

Project Background:

Ball Mountain dam located on the West River in Jamaica VT is operated for flood control in concert with Townshend dam located 9.5 miles downstream. The dam was constructed in 1961 and in 2014 was retrofitted for hydro power generation. The Ball Mountain Master Plan was developed in 1977 and is currently undergoing revisions to develop an EA for NEPA. The purpose of the Master Plan is to present a comprehensive and coordinated program for the development, management and public use of the Ball Mountain Lake Reservoir area in ways which are compatible with the authorized project purpose. Comments on the 1977 Master Plan are provided herein.

Comments on 1977 Master Plan:

Fisheries:

The Corps recognizes in their 1977 Master Plan that impounding the river and altering the WSE at the dam has negative impacts on fisheries resources. The Corps states in their master plan, "The seasonal conservation lake is not well suited for a sports fishery because of the excessive water level changes caused by flood storage and release operations, drawdown of the conservation lake in the fall and its refilling in late spring, and release and impoundment associated with regulation for white water canoes. These operations have a serious impact on the fishery at Ball Mountain Lake with the fall drawdown having the most adverse effect on the carrying capacity of the lake during the winter".

The Corps proposed to develop a Fish and Wildlife Management Plan. It is unknown if this plan was ever developed. We recommend that the Corps work with the VTFWD to develop and Fish and Wildlife Management plan.



The Fish and Wildlife Management Plan should address the following:

1. **Flows during the whitewater recreational release:** While the project operates primarily for flood control operation, the Corps provides four days of scheduled whitewater releases for boating opportunities. One weekend in May and one weekend in September recreation flows are released into the West River (Figure 1). The flow schedule for these recreational whitewater releases should comply with the Agency Coordination Plan, signed 2004. Whitewater ramping, overnight flows, and time-shift releases should be addressed in the Fish and Wildlife Management Plan. Ideally, the project would be operated in inflow-outflow mode except during flood control operations. Recreation flows can be provided during natural high flow events. The Department noted fish stranding during the autumn flow release in 2019. Taking of fish via drawing off water is prohibited (10 V.S.A. §4606).



2. **Providing riparian habitats-** In general, the West and Winhall Rivers should be provided with robust undisturbed woody riparian habitats for a minimum of 100-feet measured from the top of the bank or shoreline. Invasive species such as Japanese knotweed are prevalent in the watershed. Providing undisturbed native woody riparian habitats and administering invasive species control where appropriate should be included in the updated Master Plan.
3. **Flows during conduit inspections/repair- need to do fish rescue, report mortalities-** Per 10 V.S.A §4606 shutting off/drawing off water is illegal means of taking fish. As such, during conduit inspections and or repairs flows should be maintained in the West River. If it is not feasible to maintain a wetted channel during such works, then a fish rescue should be

conducted to collect stranded fish and get them back into the water. Any mortalities should be reported to the VTFWD.

4. **Fish passage needs-** Currently, downstream passage is provided intermittently via a surface bypass pipe as part of the hydro operations. Upstream fish passage is not provided.
5. **Recreational elevations and temperatures-** It is well known that impoundments and their associated dams can have detrimental impacts to water quality and aquatic habitats by altering the physical, chemical, and biological processes within, as well as downstream of the waters that they impound. Artificially impounding the West River to provide a recreational pool should be discussed in the Fish and Wildlife Management Plan. Ideally, the West River should function as a river when not in flood control operations.
6. **Swimming Beach at Winhall Camping Area-** The Corps bulldozed a temporary dam in the Winhall River which failed and they now rely on a natural pool at the confluence of the Winhall and West Rivers. The Corps should be aware that instream construction is regulated by the Agency. The Corps should consult with the Agency prior to any instream construction.

Thank you, we appreciate the opportunity to comment and look forward to future discussions.

Sincerely, 

Lael Will
Fisheries Biologist



**DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD**

March 17, 2025

Planning Division
Environmental Branch

Ms. Lauren Masseria, Parks Regional Manager
Vermont Department of Forests, Parks, & Recreation
100 Mineral Street
Suite 304
Springfield, VT 05156-3168

Dear Ms. Masseria:

The U.S. Army Corps of Engineers, New England District (USACE) is proposing revisions to the 1977 Ball Mountain Lake Master Plan. Ball Mountain Lake is a multi-purpose project located on the West River in Jamaica, Vermont. Project construction was completed in 1961. The project is authorized for flood control in the Upper Connecticut River Basin through the Flood Control Act of 1938. The project is authorized for development and use of the reservoir area for public recreation, wildlife management, stewardship, and other purposes through the Flood Control Act of 1944. The purpose of this letter is to invite you or a member of your staff to an informational open house, and solicit your initial comments on the Ball Mountain Lake Master Plan.

The current Ball Mountain Lake Master Plan, last approved in 1977, needs revision to address changes in regional land use, population, outdoor recreation trends, and USACE management policy. A land classification map is enclosed to show current land classifications under the 1977 Ball Mountain Lake Master Plan (Attachment 1). Key topics to be discussed in the revised Master Plan include revised land use classifications, new natural and recreational resource management objectives, recreation facility needs, and special issues such as invasive species management and threatened and endangered species habitat. The Master Plan will not address the technical and operational aspects of the lake related to flood risk management or the water conservation missions of the project.

USACE will be preparing an Environmental Assessment (EA) to address impacts to the environment. An open house will occur on April 15, 2025 to gather preliminary comments on the proposed project. The open house will be held from 4:00 – 6:00pm at the Jamaica Town Hall, 3735 VT Route 30, Jamaica, Vermont 05343. The purpose of the open house is to explain the master plan process, general schedule, and gather initial feedback.

Additional information on the Ball Mountain Lake Master Plan can be found at www.nae.usace.army.mil/missions/recreation/ball-mountain-lake/ball-mountain-lake-master-plan/.

USACE is requesting preliminary comments on the proposed action within 30 days of the open house. Comments should include any concerns that need to be addressed during the master plan process. A virtual interagency meeting will be available upon request. If you or your staff have any questions about the master plan or require additional information, please contact the lake manager, Alex Cote, at [REDACTED] or by email at [REDACTED]; or the project biologist, Kelsie Dakessian, at [REDACTED] or by email at [REDACTED].

Sincerely,

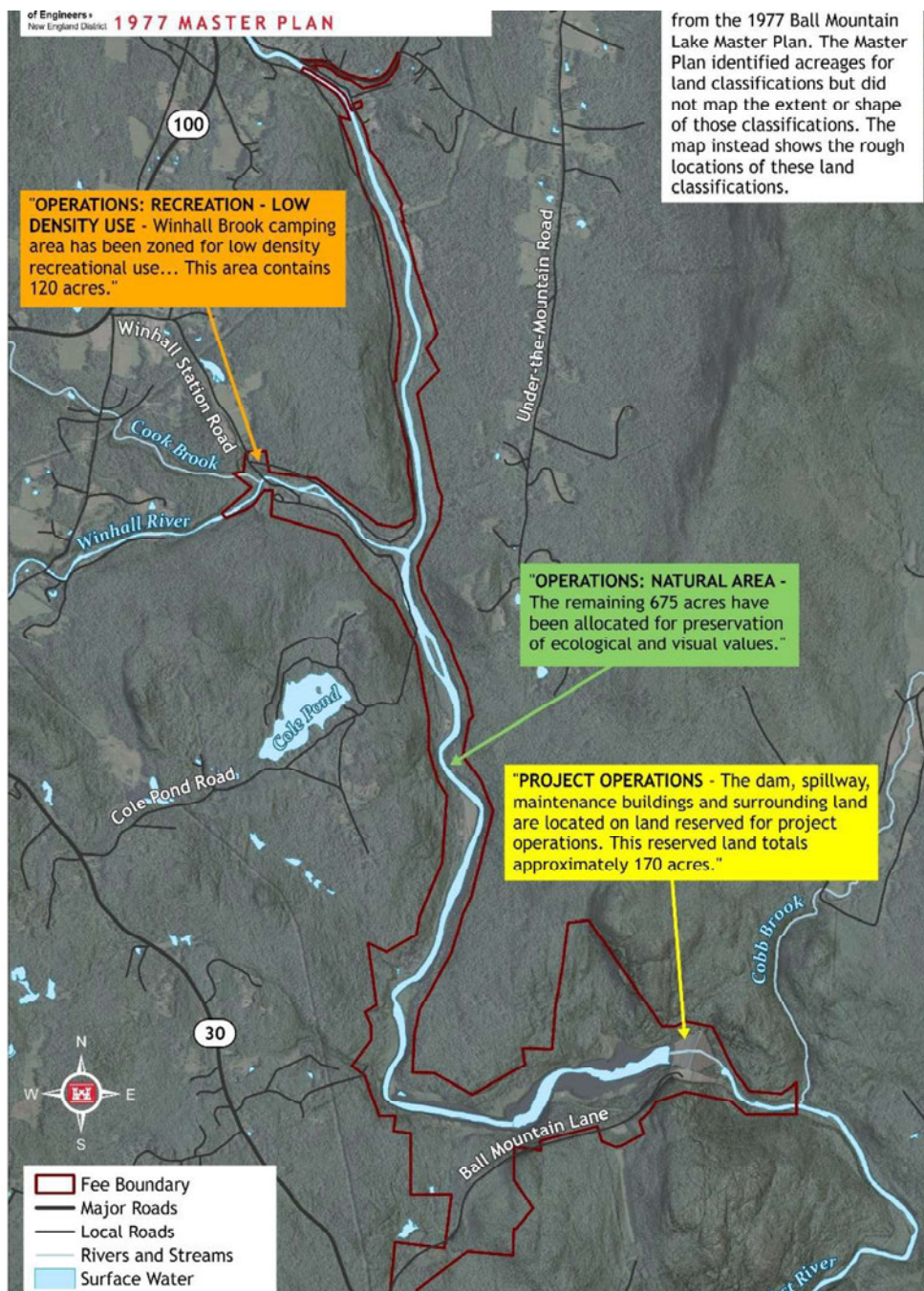


Richard B. Loyd
Chief, Environmental Branch

Enclosure

Attachment 1

1977 Ball Mountain Lake Master Plan Classifications





DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

March 27, 2025

Laura V. Trieschmann
State Historic Preservation Officer
Vermont Division for Historic Preservation
1 National Life Drive
Montpellier, Vermont 05620

Dear Ms. Trischmann:

The U.S. Army Corps of Engineers (USACE) will host an open house on Tuesday, April 15, 2025, to kick off a process to revise the 1977 Ball Mountain Lake Master Plan. The open house will be held from 4:00 pm-6:00 p.m. at the Jamaica Town Hall, 3735 VT Route 30, Jamaica, VT 05343.

The Master Plan is defined as the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the water resource development project. It defines "how" USACE will manage the resources for public use and conservation. The current Ball Mountain Lake Master Plan, last approved in 1977, needs revision to address changes in regional land use, population, outdoor recreation trends, and the USACE management policy.

An initial 30-day comment period will begin April 15, 2025, and end May 16, 2025. The Vermont Division for Historic Preservation can send comments, suggestions, and concerns during this time. Comments must be submitted in writing at the open house or digitally via the comment form on the Master Plan Revision web page:

www.nae.usace.army.mil/missions/recreation/ball-mountain-lake/ball-mountain-lake-master-plan/.

Please send your requests for additional information to Thomas Lesinski, Archaeologist, Environmental Branch, at [REDACTED]. If you wish to discuss this via telephone, you can reach Mr. Lesinski at [REDACTED].

Sincerely,

Robert Morrow
Chief, Environmental Branch
Regional Planning and Environmental Center



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

March 27, 2025

Ms. Bettina Washington
Tribal Historic Preservation Officer
Wampanoag Tribe of Gay Head-Aquinnah
20 Black Brook Road
Aquinnah, Massachusetts 02535

Dear Ms. Washington:

The U.S. Army Corps of Engineers (USACE) will host an open house on Tuesday, April 15, 2025, to kick off a process to revise the 1977 Ball Mountain Lake Master Plan. The open house will be held from 4:00 pm-6:00 p.m. at the Jamaica Town Hall, 3735 VT Route 30, Jamaica, VT 05343.

The Master Plan is defined as the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the water resource development project. It defines "how" USACE will manage the resources for public use and conservation. The current Ball Mountain Lake Master Plan, last approved in 1977, needs revision to address changes in regional land use, population, outdoor recreation trends, and the USACE management policy.

An initial 30-day comment period will begin April 15, 2025, and end May 16, 2025. The Wampanoag Tribe of Gay Head-Aquinnah can send comments, suggestions, and concerns during this time. Comments must be submitted in writing at the open house or digitally via the comment form on the Master Plan Revision web page:

www.nae.usace.army.mil/missions/recreation/ball-mountain-lake/ball-mountain-lake-master-plan/.

Please send your requests for additional information to Thomas Lesinski, Archaeologist, Environmental Branch, at [REDACTED]. If you wish to discuss this via telephone, you can reach Mr. Lesinski at [REDACTED].

Sincerely,

Robert Morrow
Chief, Environmental Branch
Regional Planning and Environmental Center



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

March 27, 2025

Mr. Roger Longtoe Sheehan
Chief
Elnu Abenaki Tribe
5243 VT Route 30
Jamaica, Vermont 05343

Dear Mr. Sheehan:

The U.S. Army Corps of Engineers (USACE) will host an open house on Tuesday, April 15, 2025, to kick off a process to revise the 1977 Ball Mountain Lake Master Plan. The open house will be held from 4:00 pm-6:00 p.m. at the Jamaica Town Hall, 3735 VT Route 30, Jamaica, VT 05343.

The Master Plan is defined as the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the water resource development project. It defines "how" USACE will manage the resources for public use and conservation. The current Ball Mountain Lake Master Plan, last approved in 1977, needs revision to address changes in regional land use, population, outdoor recreation trends, and the USACE management policy.

An initial 30-day comment period will begin April 15, 2025, and end May 16, 2025. The Elnu Abenaki Tribe can send comments, suggestions, and concerns during this time. Comments must be submitted in writing at the open house or digitally via the comment form on the Master Plan Revision web page: www.nae.usace.army.mil/missions/recreation/ball-mountain-lake/ball-mountain-lake-master-plan/.

Please send your requests for additional information to Thomas Lesinski, Archaeologist, Environmental Branch, at [REDACTED]. If you wish to discuss this via telephone, you can reach Mr. Lesinski at [REDACTED].

Sincerely,

Robert Morrow
Chief, Environmental Branch
Regional Planning and Environmental Center

APPENDIX C – WILDLIFE DOCUMENTS

OFFICIAL SPECIES LIST – USFWS



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 3301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104



In Reply Refer To:

01/07/2026 22:08:32 UTC

Project Code: 2025-0096636

Project Name: Ball Mountain Lake Master Plan Revisions

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Updated 4/12/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the “**New England Field Office Endangered Species Project Review and Consultation**” website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

<https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review>

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (Updated 4/12/2023) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at newengland@fws.gov to see if reinitiation is necessary.

Additional Info About Section 7 of the Act

Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/service/section-7-consultations>

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

<https://www.fws.gov/program/migratory-bird-permit>

<https://www.fws.gov/library/collections/bald-and-golden-eagle-management>

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 3301-5094
(603) 223-2541

PROJECT SUMMARY

Project Code: 2025-0096636

Project Name: Ball Mountain Lake Master Plan Revisions

Project Type: Land Management Plans - NWR

Project Description: The Proposed Action includes the classification of all federal fee lands and water surface areas at Ball Mountain Lake to replace the 1977 land and water surface classifications. The Proposed Action also includes updated resource goals and objectives, including those for natural resources management, recreation, and cultural resources. The proposed land classifications include Project Operations, High Density Recreation, Low Density Recreation, and Wildlife Management. Water surface area classifications include Open Recreation and Restricted areas.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.14863735,-72.79421099529245,14z>



Counties: Windham County, Vermont

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Army Corps of Engineers

Name: Kelsie Dakessian

Address: 696 Virginia Road

City: Concord

State: MA

Zip: 01742

Email: [REDACTED]

Phone: [REDACTED]

APPENDIX D – PERTINENT LAWS

- Antiquities Act of 1906, Public Law 59-209, 34 Stat. 225, 54 U.S.C. Sections 320301-320303: The first Federal law established to protect what are now known as "cultural resources" on public lands. It provides a permit procedure for investigating "antiquities" and consists of two parts: An act for the Preservation of American Antiquities, and Uniform Rules and Regulations.
- Flood Control Act of 1938, Public Law 75-761: This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.
- Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. Sections 668-668d: This Act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or any manner, any bald eagle [or any golden eagle], alive or dead, or any part, nest, or egg thereof. The Act defines "take" as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.
- Flood Control Act of 1944, Public Law 78-534: Section 4 of the act as last amended in 1962 by Section 207 of Public Law 87-874 authorizes USACE to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to Federal, State or local governmental agencies.
- River and Harbor Act of 1946, Public Law 79-525: This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.
- Flood Control Act of 1954, Public Law 83-780: This act authorizes the construction, maintenance, and operation of public parks and recreational facilities in reservoir areas under the control of the Department of the Army and authorizes the Secretary of the Army to grant leases of lands in reservoir areas deemed to be in the public interest.
- Fish and Wildlife Coordination Act, Public Law 85-624: This act, as amended, sets down the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects on these resources shall be examined along with other purposes which might be served by water resources development.
- An Act to provide for the protection of forest cover for reservoir areas under the jurisdiction of the Secretary of the Army and the Chief of Engineers, Public Law 86-717: This act provides for the protection of forest and other vegetative cover for reservoir areas under this jurisdiction of the Secretary of the Army and the Chief of Engineers.
- River and Harbor Act of 1962, Public Law 87-874: This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.

- Land and Water Conservation Fund Act of 1965, Public Law 88-578: This act established a fund from which U.S. Congress can make appropriations for outdoor recreation. This law makes entrance and user fees at reservoirs possible by deleting the words "without charge" from Section 4 of the 1944 Flood Control Act, as amended.
- Outdoor Recreation Planning and Development Act, Public Law 88-29: Authorized the Secretary of the Interior to inventory and classify outdoor recreation needs and resources and to prepare a comprehensive outdoor recreation plan taking into consideration the plans of the various Federal agencies, State, and other political subdivisions. It also states that the federal agencies undertaking recreational activities shall consult with the Secretary of the Interior concerning these activities and shall carry out such responsibilities in general conformance with the nationwide plan.
- Federal Water Project Recreation Act, Public Law 89-72: This act requires that not less than one-half the separable costs of developing recreational facilities and all operation and maintenance costs at Federal reservoir projects shall be borne by a non-Federal public body. A HQUSACE/OMB implementation policy made these provisions applicable to projects completed prior to 1965.
- Water Resources Planning Act, Public Law 89-80: This act established the Water Resources Council and gives it the responsibility to encourage the development, conservation, and use of the Nation's water and related land resources on a coordinated and comprehensive basis.
- National Historic Preservation Act of 1966, Public Law 89-665, 54 U.S.C. Sections 300101 et seq.: This act provides for: (1) an expanded National Register of significant sites and objects; (2) matching grants to states undertaking historic and archeological resource inventories; and (3) a program of grants-in aid to the National Trust for Historic Preservation; and (4) the establishment of an Advisory Council on Historic Preservation. Section 106 requires that the President's Advisory Council on Historic Preservation have an opportunity to comment on any undertaking which adversely affects properties listed, nominated, or considered important enough to be included on the National Register of Historic Places.
- Flood Control Act of 1968, Section 210, Public Law 90-483: Restricted collection of entrance fee at USACE lakes and reservoirs to users of highly developed facilities requiring continuous presence of personnel.
- National Environmental Policy Act of 1969 (NEPA), Public Law 91-190, 42 U.S.C. Sections 4321 et seq.: NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it declared a "continuing policy of the Federal Government... to use all practicable means and measures...to foster and promote the general welfare, to create conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations and public law of the United States shall be

interpreted and administered in accordance with the policies of the Act. It is Section 102 that requires consideration of environmental impacts associated with Federal actions. Section 101 of NEPA requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony.

Specifically, Section 101 of NEPA declares:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations
 - Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings
 - Attain the widest range of beneficial uses of the environment without degradation risk to health or safety or other undesirable and unintended consequences
 - Preserve important historic, cultural, and natural aspects of our national heritage and maintain wherever possible an environment which supports diversity and variety of individual choice
 - Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities
 - Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources
- River and Harbor Act of 1970 and Flood Control Act of 1970, Public Law 91-611: Establishes the requirement for evaluating the economic, social, and environmental impacts of projects.
 - To restore the Golden Eagle program to the Land and Water Conservation Fund Act, Public Law 92-347: This act revises Public Law 88-578, the Land and Water Conservation Fund Act of 1965, to require Federal agencies to collect special recreation user fees for the use of specialized sites developed at Federal expense and to prohibit the USACE from collecting entrance fees to projects.
 - Federal Water Pollution Control Act Amendments of 1972, Public Law 92-500: The Federal Water Pollution Control Act of 1948 (PL 845, 80th U.S. Congress), as amended in 1961, 1966, 1970, 1972, 1977, and 1987, established the basic tenet of uniform State standards for water quality. Public Law 92-500 strongly affirms the Federal interest in this area. "The objective of this act is to restore and maintain the chemical, physical and biological integrity of the Nation's waters."
 - Public Law 93-81: This law amends Section 4 of the Land and Water Conservation Fund Act of 1965, as amended, to require each Federal agency to collect special recreation use fees for the use of sites, facilities, equipment, or services furnished at Federal expense.
 - Endangered Species Act of 1973, Public Law 93-205, 16 U.S.C. Sections 1531 et seq.: This law repeals the Endangered Species Conservation Act of 1969. It also directs all Federal departments/agencies to carry out programs to conserve endangered and threatened species of fish, wildlife, and plants and to preserve the habitat of these species in consultation with the Secretary of the Interior. This Act establishes a procedure for coordination, assessment, and consultation.

- Water Resources Development Act of 1974, Public Law 93-251: Section 107 of this law establishes a broad Federal policy which makes it possible to participate with local governmental entities in the costs of sewage treatment plan installations.
- Archeological and Historic Preservation Act of 1974, Public Law 93-291: The Secretary of the Interior shall coordinate all Federal survey and recovery activities authorized under this expansion of the 1960 act. The Federal Construction agency may transfer up to one percent of project funds to the Secretary with such transferred funds considered non-reimbursable project costs. This amends the Reserve Salvage Act of 1960 (PL-86-523).
- An act to amend the Land Water Conservation Fund Act, as amended, to provide for collection of special recreation use fees at additional campgrounds, and for other purposes, Public Law 93-303: This law amends Section 4 of the Land and Water Conservation Fund Act of 1965, as amended, to establish less restricted criteria under which Federal agencies may charge fees for the use of campgrounds developed and operated at Federal areas under their control.
- An Act to amend the Land and Water Conservation Fund Act of 1965, as amended, to establish the National Historic Preservation Fund, and for other purposes, Public Law 94-422: Expands the role of the Advisory Council on Historic Preservation. Section 201 amends Section 106 of the National Historical Preservation Act of 1966 to say that the Council can comment on activities which will have an adverse effect on sites either included in or eligible for inclusion in the National Register of Historic Places.
- Clean Water Act of 1977, as amended, Public Law 95-217: This Act amends the Federal Water Pollution Control Act Amendments of 1972 and extends the appropriations authorization. The Clean Water Act is a comprehensive Federal water pollution control program that has as its primary goal the reduction and control of the discharge of pollutants into the nation's navigable waters. The Clean Water Act of 1977 has been amended by the Water Quality Act of 1987, Public Law 100-4.
- American Indian Religious Freedom Act, Public Law 95-341: The Act protects the rights of Native Americans to exercise their traditional religions by ensuring access to sites, use and possession of sacred objections, and the freedom to worship through ceremonials and traditional rites.
- Endangered Species Act Amendments of 1978, Public Law 95-632: This law amends the Endangered Species Act of 1973. Section 7 directs agencies to conduct a biological assessment to identify threatened or endangered species that may be present in the area of any proposed project. This assessment is conducted as part of a Federal agency's compliance with the requirements of Section 102 of NEPA.
- Archeological Resources Protection Act of 1979, Public Law 96-95: This Act protects archeological resources and sites that are on public and tribal lands and that fosters increased cooperation and exchange of information between governmental authorities, the professional archeological community, and private individuals. It also establishes requirements for issuance of permits by the Federal land managers to excavate or remove any archeological resource located on public or Indian lands.

- Supplemental Appropriations Act, 1983, Public Law 98-63: This Act authorized the USACE Volunteer Program. The United States Army Chief of Engineers may accept the services of volunteers and provide for their incidental expenses to carry out any activity of the USACE, except policymaking or law or regulatory enforcement.
- Water Resources Development Act of 1986, Public Law 99-662: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.
- North American Wetland Conservation Act of 1989, Public Law 101-233: This act directs the conservation of North American wetland ecosystems and requires agencies to manage their lands for wetland/waterfowl purposes to the extent consistent with missions.
- Americans with Disabilities Act of 1990 (ADA), PL101-336, as amended by the ADA Amendments Act of 2008 (PL110-325): This law prohibits discrimination based on disabilities in, among others, the area of public accommodations and requires reasonable accommodations for persons with disabilities.
- Native American Graves Protection and Repatriation Act, Public Law 101-601: This act requires Federal agencies to return Native American human remains and cultural items, including funerary objects and sacred objects, to their respective peoples.
- Water Resources Development Act (WRDA) of 1992 PL 102-580: This act authorizes the USACE to accept contributions of funds, materials and services from non-Federal public and private entities to be used for managing recreational sites and facilities and natural resources.
- Omnibus Reconciliation Act of 1993, Public Law 103-66: Day use fees - authorizes the USACE to collect fees for the use of developed recreational sites and facilities, including campsites, swimming beaches and boat ramps.
- WRDA 1996, PL 104-303: authorizes recreation and fish and wildlife mitigation as purposes of a project, to the extent that the additional purposes do not adversely affect flood control, power generation, or other authorized purposes of a project.
- Omnibus Parks and Public Lands Management Act of 1996, Public Law 104-333: This act created an advisory commission to review the current and anticipated demand for recreational opportunities at lakes or reservoirs managed by the Federal Government and to develop alternatives to enhance such opportunities for such use by the public.
- Neo-tropical Migratory Bird Conservation Act of 2000, Public Law 106-147: This act promotes the conservation of habitat for neo-tropical migratory birds.

APPENDIX E – PUBLIC COMMENTS

INITIAL PUBLIC SCOPING (April 15, 2025 – May 15, 2025)

AGENCY COMMENTS

COMMENT	RESPONSE
VT Dept. of Environmental Conservation (VT DEC): The river corridor above and below the Ball Mountain dam provides River Cobble Shore (RCS) habitat. Protection of this natural community should be a priority in the Master Plan. Restoration of degraded sites and careful management of flows to promote natural conditions should be exercised during all non-flood conditions.	Noted. Significant natural communities were considered during the Alternatives Development Workshop. The 2026 MP includes resource objectives to protect and restore native habitats, but does not address flood control or flow alterations at Ball Mountain Lake.
VT DEC: Sediment deposition in mussel bed habitat is a stressor on sensitive populations. Careful management of sediment transport and deposition should be a priority of dam operations during non-flood conditions.	Noted. The Master Plan does not address flood control operations at Ball Mountain Dam.
VT DEC: The West River below the Ball Mountain dam, the reach described as "West River, Townshend Dam to Grassy Brook" has the problem of "USACOE dam operation, impounded waters release results in elevated temperatures downstream" and the pollutant(s), "TEMPERATURE", have caused it to not meet the Vermont Water Quality Standards. To come into compliance with Vermont Water Quality Standards, strategies to address this impairment should be developed and implemented as part of the Master Plan.	Noted. Section 2.3 of the 2026 MP describes Priority Waters at Ball Mountain Lake. The Master Plan does not address flood control operations at Ball Mountain Dam.
VT DEC: The recreation bridge over the mouth of Cobb Brook is a flow constriction. Stone placed at the bridge abutments constrict the channel to just 21% of bank-full-width. This constriction captures further material preventing it from moving into the West River. It also increases flow velocity limiting upstream fish passage. Plans for future dam maintenance that will use the West River Trail for access should include remediating this constriction to provide improved aquatic organism passage and sediment transport.	Noted. This information will be shared with the Friends of the West River Trail as a consideration for future maintenance.

COMMENT	RESPONSE
VT DEC: In the Ball Mountain Lake area Japanese Knotweed is pervasive and thrives in disturbed areas. Control and spread prevention should be actively pursued.	Concur. The 2026 MP includes resource objectives to manage lands and waters to reduce the spread of invasive, non-native, and aggressively spreading native species.
VT DEC: Establishing and maintaining riparian vegetation and protecting riparian buffers from the impacts of recreation should be included in all project development plans.	Noted. The 2026 MP does not include any plans for construction. The 2026 MP includes resource objectives to protect and restore native habitat and to manage high density and low-density recreation lands in ways that balance visitor use with benefits to wildlife.
VT DEC: River Cobble Shore habitats and mussel bed habitats should be protection and restoration priorities.	Noted. Significant natural communities were considered during the Alternatives Development Workshop. The 2026 MP includes resource objectives to protect and restore native habitats, including the protection and restoration of special or rare plant species.
VT DEC: During non-flood operations flow management should work to address the temperature impairment in the West River.	Noted. The MP does not address flood control or flow management at Ball Mountain Dam.
VT DEC: Erosion is observable from gravel roads, camp sites and trails adjacent to the rivers and stream on Ball Mountain Lake lands. Stormwater control practices should be implemented to mitigate soil loss into these waters and riparian buffers should be installed and maintained in these locations.	Noted. The 2026 Master Plan does not include any plans for construct of buffers. This document does include resource objectives to protect and restore native habitats. See Ch 3 for additional details.
VT DEC: Trails near River Cobble Shore habitat should not allow access through and into the habitat to access the water. Strategies to block access to these areas should be implemented.	Noted. The 2026 Master Plan does not include any plans for construct of buffers. This document does include resource objectives to protect and restore native habitats. See Ch 3 for additional details.

COMMENT	RESPONSE
VTFWD: The Corps proposed to develop a Fish and Wildlife Management Plan. It is unknown if this plan was ever developed. We recommend that the Corps work with the VTFWD to develop and Fish and Wildlife Management plan.	A Fish and Wildlife Management Plan was never formally developed. USACE will consider drafting a plan and coordinate with VTFWD during the process.

GENERAL STAKEHOLDER COMMENTS

COMMENT	RESPONSE
I am writing in as part of the public comment period for the Ball Mountain Dam Master plan. As a whitewater kayaker, I have fond memories of the semi-annual releases on the West River. These events bring in a large community of whitewater boaters to make use of this public resource, while also bringing much needed revenue into the area through lodging and food purchases. It has been disappointing that in recent years ongoing work on the dam, improper management of water for releases and the damage to the access road inside the state park (and subsequent minimal attempt at repair) has led to cancellations of the releases and the regional whitewater festival surrounding the release. I urge you in the next revision of the master plan to consider the important stakeholders of whitewater boaters by increasing the frequency of scheduled whitewater releases, holding back water during high flow events to enable releases to occur during weekends, and increase advance public notice of when a release is planned. Finally, please work with the state park to expedite the repair of the access road within the park so that a shuttle service can be established during release weekends. This increases important accessibility for those unable to carry their craft over the dam.	Non-concur. The primary purpose of Ball Mountain Lake is flood control. Water releases are not defined within the scope of the MP. USACE maintains a Water Control Manual which further defines water management. The access road referenced is not within the fee boundary and is a state park owned and maintained road.

COMMENT	RESPONSE
I'm a whitewater kayaker living in Northampton, MA which is about 75 minutes from Jamaica State Park. I've been to the West River releases for the past 12 years and think this river is one of the best in the area. It is also one of the most accessible rivers for a wide range of people, which is one of the purposes of public lands. I have enjoyed spending time in and near Jamaica, VT, spending my money at local establishments and camping at the state park. Regular and predictable dam releases would be vitally important to advancing the outdoor recreation goals and experiences of hundreds of people who would travel to the area to enjoy the natural resources available to the public. Scheduling releases of approximately 1,500 cfs (for optimal flows) for at least 3 hours on standard weekends between May and October would make best use of these resources during the season. I recommend following the advice of American Whitewater and scientists to determine the frequency of releases, balancing ecological needs with human needs. Doing so will advance stewardship of these lands and ensure their sustainability.	Non-concur. The primary purpose of Ball Mountain Lake is flood control. Water releases are not defined within the scope of the MP. USACE maintains a Water Control Manual which further defines water management.
Thank you for inviting comments on the master plan revision. For decades recreation has been a significant use of the land at Ball Mountain Lake. Personally I have enjoyed whitewater boating and trail biking there for years. Many other people also enjoy hiking/walking and xc skiing and picnicking there. Recreation adds to public support for Ball Mountain Lake and Townshend Lake, and it doesn't interfere with USACOE's main mission there. Promoting public recreation should be an integral part of the master plan. Two local organizations already help to manage public recreation on these USACOE properties. The Jamaica Area Mountain Bike Association (JAMBA) and the Friends of the West River Trail (FWRT) provide ideas and labor at no cost to USACOE. A cooperative agreement with these organizations should be an integral part of the master plan. Cooperation with user groups is essential to many other federal land managers (USFS, NPS, BLM) which also work with limited budgets and staff.	Noted. USACE values volunteer and partner groups to improve and enhance the recreation opportunities at the lake. USACE welcomes the opportunity to establish a formal partnership with organizations such as JAMBA and FWRT. USACE plans to work on a Challenge Partnership agreement in the future to continue trail development.

COMMENT	RESPONSE
As a Jamaica resident and founding member of the Jamaica Area Mountain Bike Alliance, I'm pleased to share some thoughts relevant to USACE's master plan revision for Ball Mountain Lake (BML). Under a Challenge Partnership Agreement with USACE, JAMBA built and maintains two one-half-mile mountain bike trails at BML: Having a Ball and Hard Corps. And since our inception in 2019, working in cooperation with Friends of the West River Trail (FoWRT) under the Memorandum of Agreement USACE formed with the Windham Regional Commission, JAMBA also has performed the majority of maintenance on the section of the West River Trail between the Cobb Brook Bridge downstream of Ball Mountain Dam and the Pratt Bridge abutments. We hired a professional trail builder to design and hand build our two trails, and we hired them again last summer to design several reroutes on this section of the West River Trail, as well as improvements to the existing trail, to make it safer, more foul weather-resilient, and more fun for hikers and mountain bikers. We have the go-ahead from Alex to proceed on much of this work so we hope to make substantial progress this summer. Three of us were actually out there today clearing debris from the trail near Angel Falls. Additionally the trail builder flagged a proposed new mountain bike trail that would expand single track mountain bike trail offerings at BML threefold. We're hoping this project will be the primary focus of our next formal agreement with USACE.	Noted. USACE is greatly appreciative of the active volunteers at Ball Mountain Lake. These partnerships provide valuable opportunities for the visiting public. USACE welcomes the opportunity to discuss areas which can be improved with volunteer support.

DRAFT MASTER PLAN PUBLIC COMMENTS

Section to be added after draft release.

APPENDIX F – ACRONYMS

ARPA	Archeological Resources Protection Act
BCC	Birds of Conservation Concern
DM	Design Memoranda
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
EOP	Environmental Operating Principles
EP	Engineering Pamphlet
EPA	Environmental Protection Agency
ER	Engineering Regulation
ESA	Environmentally Sensitive Area
FLIGHT	Facility Level Information on Greenhouse Gases Tool
FOIR	Future or Inactive Recreation
FPR	Department of Forests, Parks, and Recreation (FPR)
GIS	Geographic Information System
GHG	Greenhouse Gases
HDR	High Density Recreation
HUC	Hydrologic Unit Code
IPaC	Information for Planning and Consultation
KCC	Köppen-Geiger Climate Classifications
LDR	Low Density Recreation
LEED	Leadership in Energy and Environmental Design
MG	Mitigation
MSL	Mean Sea Level
MRML	Multiple Resource Management Lands
MWCM	Master Water Control Manual

NAE	New England District
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NRM	Natural Resource Management
NWI	National Wetlands Inventory
OMP	Operational Management Plan
PO	Project Operations
RPEC	Regional Planning and Environmental Center
SCORP	Statewide Comprehensive Outdoor Recreation Plan
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VANR	Vermont Agency of Natural Resources
VCGI	Vermont Center for Geographic Information
VDFW	Vermont Department of Fish and Wildlife
VM	Vegetative Management
VNHI	Vermont Natural Heritage Inventory
VOREC	Vermont Outdoor Recreation Economic Collaborative
VT DEC	Vermont Department of Environmental Conservation
WQS	Water Quality Standards
WM	Wildlife Management