

MINUTE MAN NHP

FIRE MANAGEMENT PLAN

1992

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Minute Man National Historical Park

Prepared by:

Matthew L. [Signature] 2/14/92
(Park Ranger)

Reviewed by:

Daniel J. Dattilo 2/14/92
(Chief Park Ranger)

Recommended by:

Lawrence Galle 2/14/92
(Superintendent)

Reviewed by:

(Regional Fire Management Officer, NARO)

Reviewed by:

(Branch of Fire and Aviation Management)

Approved by:

(Regional Director)

TABLE OF CONTENTS

<u>Chapter #:</u>	<u>Description:</u>	<u>Page:</u>
I.	Introduction	2
II.	Compliance with NPS Policy	2
III.	Description of Park	3
IV.	Park Fire Management Objectives	8
V.	Fire Management Strategies	8
VI.	Fire Management Units	9
VII.	Fire Management and Responsibilities	15
VIII.	Wildfire Program	16
IX.	Management Ignited Prescribed Fire	23
X.	Fire Research and Monitoring	25
XI.	Public Safety	26
XII.	Public Information and Education	27
XIII.	Archaeological/Cultural/Historic Resources	27
XIV.	Consultation and Coordination	28

Appendices:

A	Enabling Legislation
B	Dominant Soil Series
C	Flora
D	Fauna
E	Memoranda of Understanding
F	Massachusetts Open Burning Regulations

I. INTRODUCTION:

The National Park Service fire management policy is found in NPS 18, National Park Service Fire Management Guideline. It is a requirement that all NPS units containing vegetation capable of supporting fire develop and maintain a Fire Management Plan (hereinafter FMP). The degree of complexity for a given, park-specific FMP is dependant upon, among other things, the park's extant natural and cultural features, the susceptibility of those resources to fire and the fire history of the area.

This FMP for Minute Man National Historical Park (hereinafter MIMA) is part of the park's Resource Management Plan and defines the goals and objectives for wildland fire management. It provides a detailed and technical framework for all aspects of fire management including prevention, presuppression and suppression. It also proposes an experimental prescribed burning program to restore and maintain historic scenes.

This plan is in compliance with the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). An Administrative Record for any proposed research burns will be developed by the Superintendent to satisfy NEPA compliance. Any proposed actions, including research burns, will go through the NHPA, Section 106 compliance process prior to implementation.

The authorities for implementing this plan are found in the National Park Service Organic Act (Act of August 25, 1916) and the National Parks and Recreation Act of 1978. Interagency agreements are permitted pursuant to an "Interagency Agreement Between the Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service of the United States Department of Interior and the Forest Service of the United States Department of Agriculture," 16 USC 1b(1), Departmental Manual (910 DM) and the park's enabling legislation (Public Law 86-321) (Appendix A).

This plan is recommended by the Superintendent, reviewed by the WASO Branch of Fire and Aviation Management and Regional Fire Management Officer and approved by the Regional Director. The plan will be revised through annual amendments if necessary and whenever a major program shift is proposed (e.g., prescribed fire). The FMP will be thoroughly reviewed every three years.

II. COMPLIANCE WITH NPS POLICY:

Minute Man National Historical Park was established in 1959 (Public Law 86-321) to preserve and commemorate the site of the first battle between Colonial and British forces which heralded the start of the American Revolutionary War in 1775. The enabling legislation, General Management Plan and Resource Management Plan direct the park to preserve and restore certain cultural and natural features to a condition and appearance that would have

existed at the time of the battle.

For purposes of the FMP, the main management goal is to restore the appearance of the historic landscape to certain areas within the park. These goals will be achieved through the accomplishment of the following objectives:

Cultural Resources:

1. Removal of non-period cultural features from the landscape.
2. Restoration/rehabilitation of existing period cultural features (e.g., stone walls).

Natural Resources:

Pursuant to the park's Landscape Management Plan (currently being developed):

1. Certain areas open in 1775 and presently under forest canopy will be returned to period use and/or appearance
2. Certain areas forested in 1775 and presently open will be allowed to return to period appearance through natural succession.
3. Areas approximating the vegetative cover of 1775 will be maintained.

Other management goals include the protection of life, property and threatened or endangered species.

The FMP will help accomplish these objectives in a variety of ways. Suppression of wildland fire protects historic structures and landscapes. The construction of fire breaks along the park boundary and establishment of defensible zones around historic structures can prevent fire damage. The potential for prescribed fire as a resource management tool to maintain the historic landscape is something the FMP proposes to explore. The FMP is a detailed program of action to implement fire management policies and objectives.

The park General Management Plan suggests that the use of prescribed fire may be one alternative way of restoring and/or maintaining an historic landscape. This alternative means of maintaining an historic scene is allowable under NPS policy (NPS 18, Section III, Chapter 5, page 1). The FMP proposes to initiate a research burn program in 1992 determine the viability of this alternative.

III. DESCRIPTION OF PARK:

MIMA currently comprises 750 acres and is located in the county of

Middlesex, Massachusetts and is about 20 miles northwest of Boston (Figure 1). Congressional approval for the acquisition of an additional 200 acres is currently being sought. The park includes portions of the towns of Concord, Lincoln and Lexington. The area is characterized by suburban and commercial development with associated heavy commuter traffic. Still, due largely to the establishment of town conservation lands, the park and immediate surroundings maintain an open appearance. Bordering landowners include Hanscom Air Force Base (Lincoln), Great Meadows National Wildlife Refuge (Concord) and land under private and municipal ownership.

Climatology:

The park is dominated by air masses flowing out of the west and are responsible for the highly variable weather patterns. Precipitation has a fairly equable annual distribution and averages 40 - 50 inches. Snow in this region averages 50 inches annually. The mean annual temperature is 50 degrees. Summers are generally warm and humid with mean July temperatures around 72 degrees. Winter temperatures have a mean average of 27 degrees in January (National Weather Service).

Topography:

Most of the park is characterized by relatively flat land with periodic hills and ridges. Several drainages transect the park and about 80 acres of wetland cover the lowest elevations. Elevation varies from 120 feet above sea level at the Concord River to 300 feet on top of Fiske Hill, located at the eastern end of the park. Percent slope averages 5 %.

Soils and Geology:

Park soils are relatively young, having formed since the retreat of the last glacier (the Laurentide ice sheet) some 10,000 years ago. Overlying a bedrock of metamorphic and igneous origin are various types of stratified and nonstratified glacial deposits which have broken down to form the present soils.

The landscape is comprised of riverine lowlands, flat plains and scattered hills with variable slopes. The soils in general, except for the alluvial deposits surrounding the Concord River, are characteristically stony and moderately to well drained. The flat areas have supported a local agrarian economy since well before the start of the American Revolutionary War. Refer to Appendix B for a listing of dominant soil series.

Air Quality:

MIMA is located twenty miles northwest of downtown Boston. The immediate area is characterized by rapidly spreading industrial,

commercial, and residential development. Sources of air pollutants include industrial and motor vehicle emissions, Hanscom Airfield and Air Force Base (bordering the park to the north) and generalized smog brought in from urban centers south and west of Massachusetts.

In general, air quality at MIMA is fair to good. The U.S. Environmental Protection Agency monitors six air quality indices in eastern Massachusetts: sulphur dioxide, ambient particulate matter, carbon monoxide, ozone, nitrogen dioxide and lead. For 1987 only ozone exceeded Federal standards in a few instances. These findings are reported on an annual basis.

Water Resources:

The park lies between the watershed boundaries of the Concord River flowing north, the Shawsheen River flowing northeast and the Charles River flowing east. The Concord River flows through The North Bridge Unit of the park. The Concord is a slow moving river with a wide floodplain and extensive contiguous wetlands that provide food and cover for a variety of wildlife. Flooding occurs along the river but is not a serious threat to park cultural resources other than minor erosion along the banks. Mill Brook rises in areas north of the Battle Road and flows into the Concord River above the North Bridge. Elm Brook flows through The Battle Road Unit.

The park has approximately eighty acres of wetland. Several of the wetland sites have been identified on the National Wetland Inventory by the U.S. Fish and Wildlife Service.

For years the Commonwealth of Massachusetts has issued a warning that fish caught in the Concord and Sudbury rivers should not be consumed due to high mercury levels found in the river bottom. The mercury leached into the Sudbury river upstream in Ashland, from a nearby hazardous waste dump. Mercury contamination is very persistent and as a result the rivers' fish populations will likely remain unhealthy for human consumption for the foreseeable future.

Flora:

Flora within the park include species found in forest, wetland, forest edge, open field and riverine floodplain communities. In the 200+ years since the occurrence of the 1775 battle the landscape has undergone extensive changes including land clearing for agricultural purposes, timber harvesting for fuel and other uses and residential development. The present day park landscape is a product of past practices and natural succession. Many non-native plant species have been introduced; several species, such as Purple Loosetrife, are noxious pests. Refer to Appendix C for a listing of some of the more common plant species found in the park.

Fauna:

Animal populations in the park are quite diverse. Eastern deciduous forest, abandoned hay fields and orchards, wetlands, rivers, ponds and miles of stone walls all provide for a diversity of habitats. White tail deer, eastern coyote, cottontail rabbit, striped skunk, opossum and raccoon are some of the more common larger mammals found. Refer to Appendix D for a listing of the birds, mammals, amphibians, reptiles and fish common to the park.

According to the U.S. Fish and Wildlife Service no known threatened or endangered species are known to exist in the park.

Forest Insects and Diseases:

The tree species within the park appear to be quite healthy. The Middlesex County Extension Service (a state funded agency) reports that eastern Massachusetts suffers very little from forest insects and diseases. The last occurrence of high tree mortality occurred in 1981 with an infestation of the Gypsy Moth caterpillar. During this cycle approximately 13 million trees in the eastern U.S. were defoliated, ultimately bringing about the demise of many of the effected trees because of the stress that refoilation placed upon their systems.

Forest insects and diseases that have been identified at MIMA but at present pose no real threat are:

1. Gypsy Moth (*Lymantria dispar*): Accidentally introduced into Massachusetts in 1869. Tree damage depends on highly variable annual population levels. Preferred hosts are deciduous trees, especially oaks, but may involve a diversity of softwood varieties including pines.
2. Fall Webworm (*Hyphantria cunea*): Insect causes a low tree mortality, 'webs' occur in mid-August. Occurs in 6-7 year cycles. Prefers softwoods such as cherry, hickory, apple and birch.
3. Eastern Tent Caterpillar (*Malacosoma americanum*): 'Tents' are prevalent in the spring. Prefers trees similar to Fall Webworm.
4. Dutch Elm Disease (*Ceratocystis ulmi*): Occurrence of elm trees in the park is absent or negligible.

Agricultural Use:

One of the primary goals of the park as outlined in the General Management Plan is to restore a certain portion of the landscape to the appearance that a person would have encountered in 1775. Once

this is accomplished the park will largely resemble an agricultural landscape with fields of hay, historically accurate "truck farm" crops and scattered apple orchards.

Currently there are several parcels of land that are leased to private citizens as farm land. For the most part these are the same people who held the land for similar purposes prior to establishment of the park and subsequent acquisition of their properties. A few fields are currently under lease with the express stipulation that the lessee have the field thereby lessening the burden of grass mowing on the park's maintenance division and preventing yet more acreage from returning to forest.

Livestock:

Currently there are two pastures in the park leased to an area resident for purposes of pasturing horses during the spring, summer and early fall months. It is incumbent upon that individual to maintain the open appearance of those parcels of land. The grazing of this land keeps some of the woody vegetation in check, but is probably promoting non-native plant species.

IV. PARK FIRE MANAGEMENT OBJECTIVES:

The fire management goals for MIMA are :

1. To prevent wildfires.
2. To rapidly detect, respond to and effectively suppress wildfires using minimum impact techniques.
3. To determine if management ignited fires can be used to restore and/or maintain historic landscapes.

V. FIRE MANAGEMENT STRATEGIES:

MIMA is a relatively small historical park located in a very developed suburban area. Because of the high number of historic structures in the park and the extensive urban interface with private structures and development, the cultural values at risk are high and therefore the only realistic wildland fire management strategy is full suppression.

The FMP is comprised of action plans which address specific aspects of fire management and, taken together, form a comprehensive fire management program. There are action plans for fire prevention, presuppression, suppression and rehabilitation. A prescribed fire action plan will be added to the FMP in the form of an amendment should park management decide to pursue this resource management tool.

This FMP proposes that the park conduct a number of management

ignited research burns to consider whether or not prescribed fire is a realistic alternative resource management tool for restoration and/or maintenance of historic scenes. Once the various data from the proposed research burns have been examined a determination will then be made whether or not to introduce a formal prescribed burn program.

Research burns will be conducted pursuant to a prescription found in the burn plan specific to that burn unit. Such plans will be developed in consultation with the Regional Fire Management Officer. All NEPA and NHPA approvals must be received prior to conducting the research burn.

VI. FIRE MANAGEMENT UNITS:

MIMA is divided into three administrative units: North Bridge, Wayside and Battle Road units (Figure 2). Because of its relatively small acreage the entire park, with the exception of two sites proposed for research burns, is treated as one fire management unit (FMU) and is designated FMU #1.

This FMP proposes to conduct research burns on two sites in the park. Each of these sites is treated as a separate FMU. Locator maps delineating the proposed burn sites follow as Figures 3 & 4.

There are three major plant community types found in the park. The hardwood forest type is dominated by oak, maple, birch, beech, ash and sporadic patches of eastern white pine. The brush type is an intermediate stage between open field and mature forest and is comprised of pioneer species such as ash, maple and locust. The grass/open field type consists primarily of native blue grass, timothy, red top and orchard grass. Poison ivy is common on recently disturbed, non-cultivated sites.

FMU # 1:

General Description: This unit includes all lands within the park except for those tracts listed below as FMU's 2 & 3. This FMU is a full suppression zone.

Fire History: According to a fire occurrence history search conducted on the National Wildland Fire Computer System there have been a total of three wildfires in this FMU since 1981 (inclusive). Each incident has involved less than .5 acre. No records have been located at the park to determine the occurrence of wildfires before 1981.

Fuel Models Present: (as taken from the Fire Behavior System):

1. Model #1 - Short Grass:

-DESCRIPTION: Fire spread governed by the fine herbaceous fuels that have cured or are nearly cured. Very little, if

any, shrubs or trees are present, generally less than one-third of the area.

-FIRE BEHAVIOR: Wind driven surface fires that can burn very rapidly.

2. Model #3 - Tall Grass:

-DESCRIPTION: Fire spread is in tall stands of grass averaging about three feet where one-third or more of a stand is considered dead or cured. Fire may be carried by wind through the upper heights of grasses standing in water.

-FIRE BEHAVIOR: Fires in this fuel are the most intense of the grass group and display high rates of spread under the influence of wind.

3. Model #5 - Brush:

-DESCRIPTION: Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs and the grasses or forbs in the understory. Shrubs are generally not tall but have nearly total coverage of the area.

-FIRE BEHAVIOR: Fires are generally of low intensity as

surface fuel loads are light, shrubs are young with little dead and the foliage contains little volatile materials.

4. Model #9 - Hardwood Litter:

-DESCRIPTION: Fire spread is primarily in surface litter such as concentrations of dead, dry leaves in fall or spring. Stands can be hardwoods, mixed hardwood/conifers or long needle conifers.

-FIRE BEHAVIOR: Fires run through the surface litter and possibly torch out trees, spot and crown where concentrations of dead-down woody materials are encountered.

Annual Fire Weather Cycle: The greatest potential for wildfire occurs during the late winter-early spring, prior to leaf-out and again in the fall. High fire dangers in the short and tall grass fuel models can occur as early as August, especially with low rainfall and/or high temperatures.

FMU # 2:

Description: This is an approximately five acre site that is within a larger parcel proposed for park acquisition in late winter-early spring of 1992. The site is located in Concord, approximately 1000 feet north of Lexington Road. It is an abandoned agricultural field bordered to the north and south by deciduous forest, to the east by an agricultural field and to the west by a combination of forest and brush. Vegetation is dominated by grasses two to four feet tall. There are periodic islands of brush within the site and along the margins, as well as some shorter grass varieties throughout. This FMU is a full suppression zone except when burning after management ignition and according to

prescription.

Fire History: Unknown for this specific tract.

Fuel Models Present: Model #1, Model #3 and Model #5 (refer to the above for fuel model description and expected fire behavior).

Annual Fire Weather Cycle: Refer to FMU #1.

FMU # 3:

Description: This FMU is located within NPS-MIMA tract #03-114 in the town of Lincoln. Approximately 400 feet south of Route 2A (North Great Road), this approximately one acre site contains a combination of short grasses and brush. Thick brush which has overgrown an old stone wall bisecting this tract is the main target for the research burn. The park's new fire weather station is adjacent to this site. This FMU is a full suppression zone except when burning after management ignition and according to prescription.

Fire History: Unknown for this specific tract.

Fuel Models Present: Model #1 and Model #5. (refer to the above for fuel model description and expected fire behavior).

Annual Fire Weather Cycle: Refer to FMU #1.

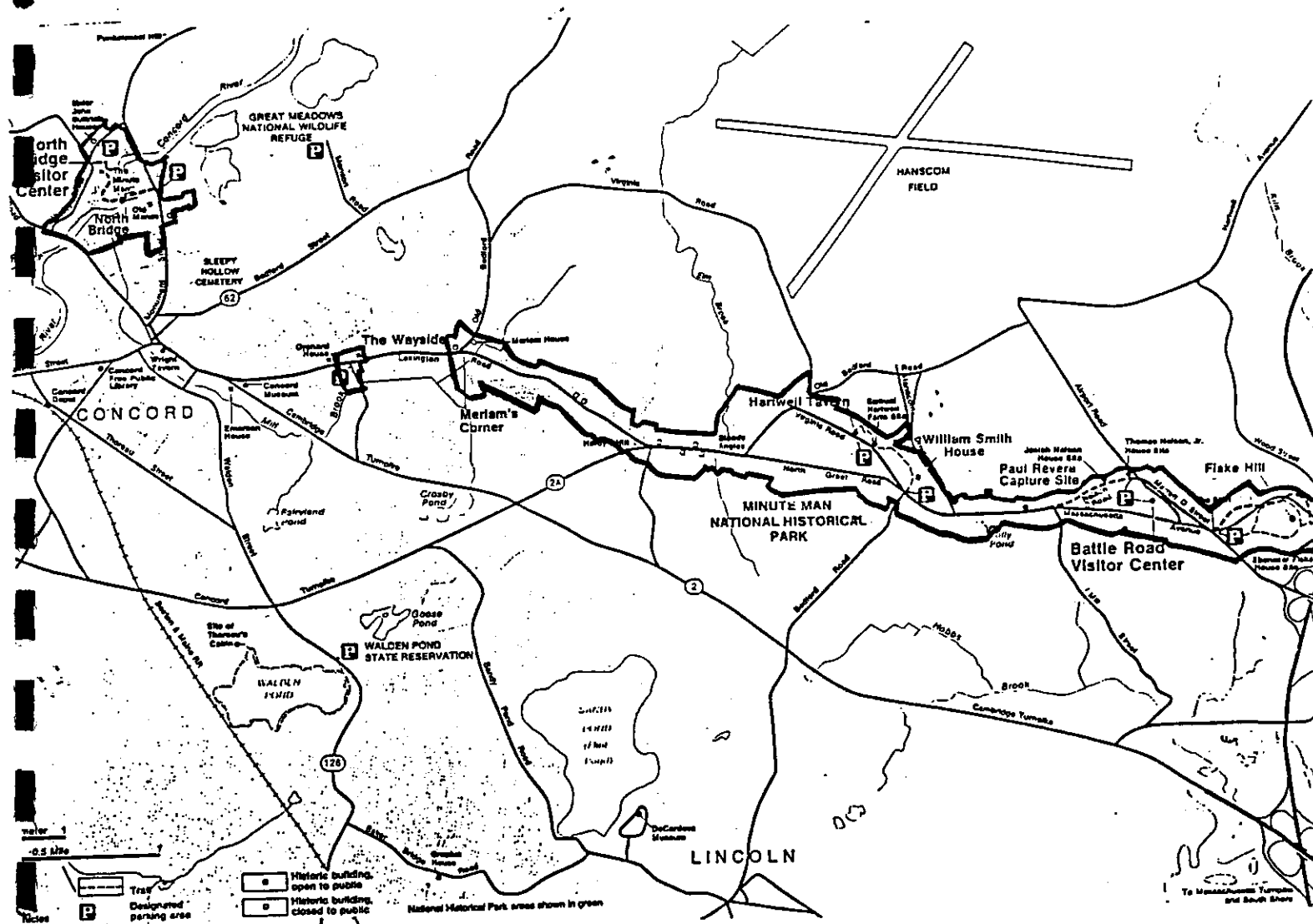
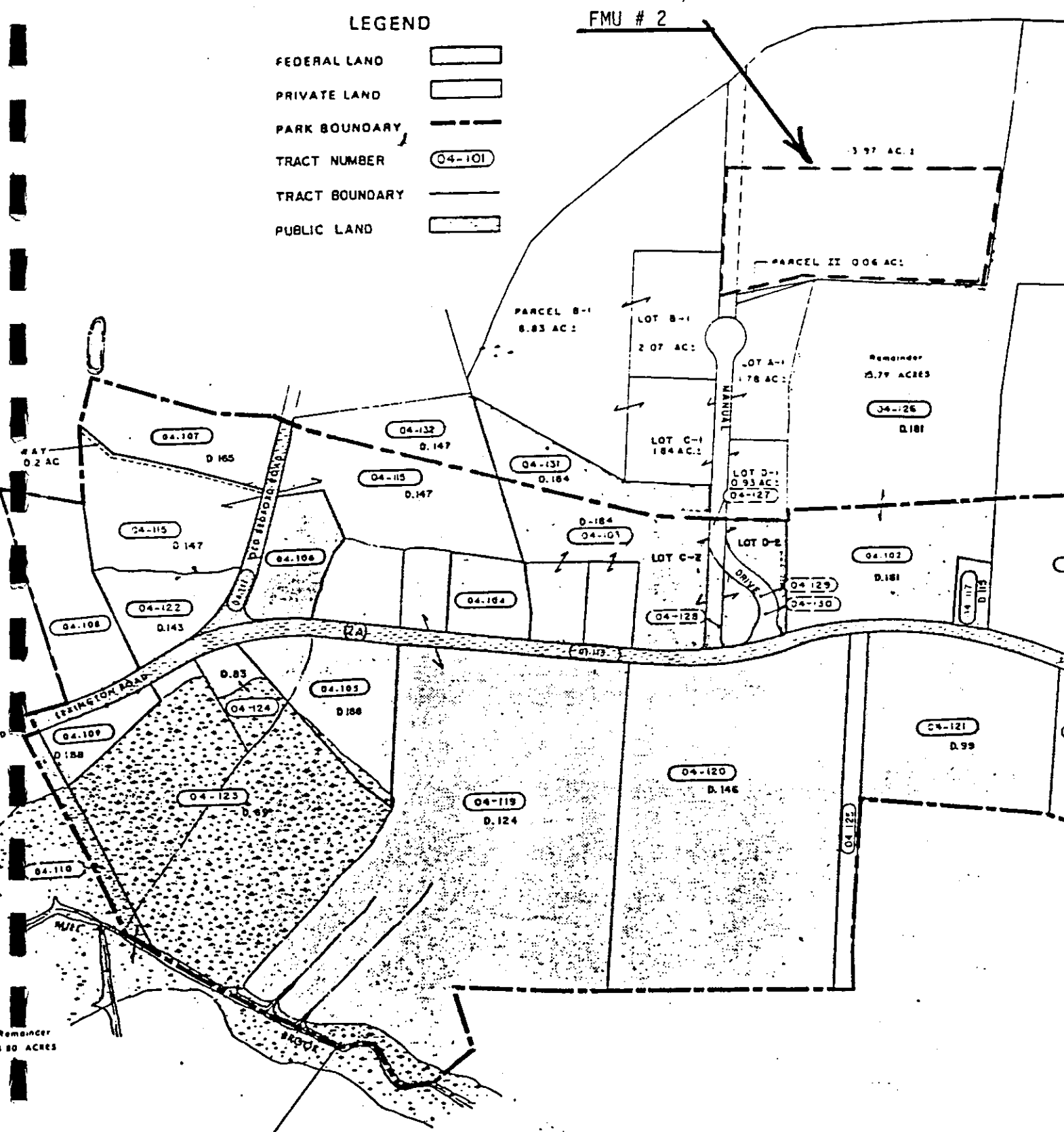


Figure 2. Fire Management Unit No. 1

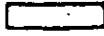
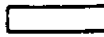
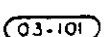
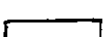
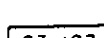
FEDERAL LAND	
PRIVATE LAND	
PARK BOUNDARY	
TRACT NUMBER	
TRACT BOUNDARY	
PUBLIC LAND	



-13-

UNITED
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LEGEND

FEDERAL LAND	
PRIVATE LAND	
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TOWN BOUNDARY	
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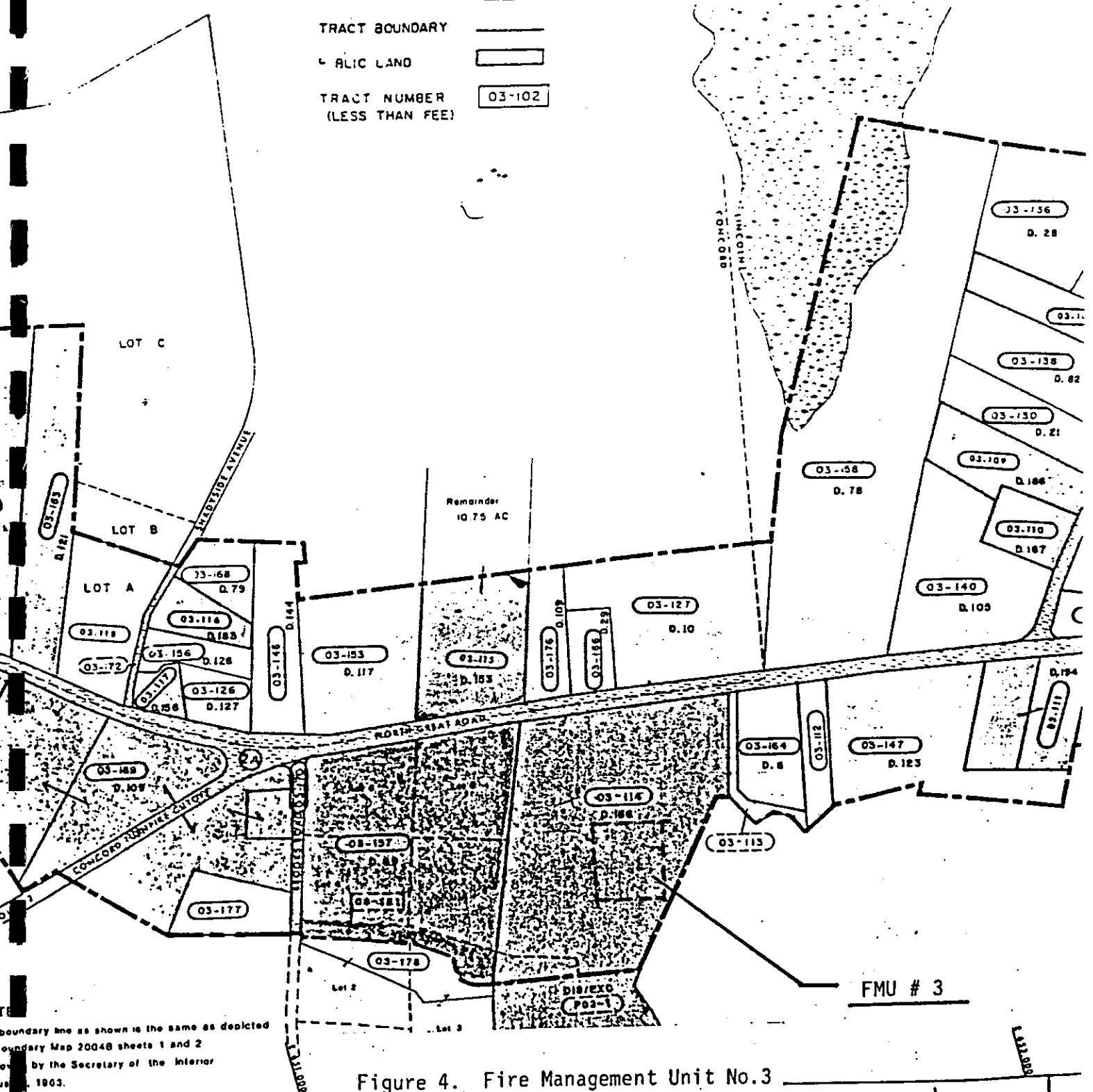


Figure 4. Fire Management Unit No.3

VII. FIRE MANAGEMENT AND RESPONSIBILITIES:

Fire Management Team:

MIMA is a small park with an equally small permanent staff. The Park Fire Management Officer and the Division of Resource Management and Visitor Protection have primary responsibility for all fire management activities in the park. The three permanent protection rangers are red-carded and certified as basic firefighters. The Chief of Maintenance is also red-carded as a basic firefighter and has some experience as a sawyer. When red-carded seasonals are employed they become part of the park fire management team. There is an ongoing effort to get more employees, both permanent and seasonal, trained as basic firefighters. Additionally, there is an ongoing effort to provide advanced training to personnel already certified as basic firefighters; this is dependant upon available time and funding.

The following MIMA personnel are currently red-carded:

Matt Poole, FMO, ranger	basic firefighter
Dan Dattilio, Chief Ranger	basic firefighter
Flo Smith, Ranger	basic firefighter
Blaise Davi, Chief of Maintenance	basic firefighter

Responsibilities:

Superintendent: As general overseer of operations at MIMA the Superintendent has the overall responsibility for fire management and reports to the Regional Director, North Atlantic Region.

Fire Management Officer (FMO): The Park FMO has day to day responsibility for the fire management program. He/she procures supplies and training for personnel, stocks the fire cache, conducts fitness testing, maintains fire personnel records, reports fire weather indices through AFFIRMS, maintains all program related mechanical equipment, communicates with Regional FMO on related matters and submits proposals for funding under the FIREPRO and Annual Cyclic Fire programs. He/she conducts all fire incident reporting (DI-1202). In concert with the Regional FMO, the Park FMO drafts prescribed burn plans, amendments to the park FMP and other required reports. He/she is the Incident Commander on all park fire suppression efforts in the absence of other NPS personnel with higher levels of fire training. In his/her absence another designated Protection Division employee will conduct the reporting.

Chief Ranger: The Chief Ranger has overall fire program responsibility. In the absence of the FMO he/she serves as Incident Commander on park fire suppression efforts in the absence of other NPS personnel with higher levels of fire training. He/she is also responsible for reporting all personnel costs resulting from suppression or prescribed fire incidents to the Administrative

Officer.

Other MIMA Red-Carded Personnel: The remaining red-carded personnel serve on the park suppression crew and also work on any prescribed burns conducted. In the absence of the FMO or Chief Ranger he/she serves as Incident Commander in the absence of other NPS personnel with higher levels of fire training.

Administrative Officer: He/she keeps all personnel time sheets with information provided from the field by the FMO. He/she makes sure that all related time keeping information is reported to other parks whose personnel have participated in a fire management project at MIMA.

Radio Dispatcher: In the event that a wildfire occurs during normal park business hours the on-duty permanent interpreter at the North Bridge Visitor Center in Concord will be requested to take control of the park's radio base station and coordinate all on-air communications. He/she will remain in that role until relieved by the FMO, Chief Ranger and/or other Incident Commander.

Regional Communication:

All fire management related communication between the park and the regional office will be conducted through the North Atlantic Region Fire Management Officer, Dan O'Brien at (617)-223-5067.

Interagency Coordination:

Memoranda of Understanding have been developed between the park and the municipal fire departments from Concord, Lincoln and Lexington (Refer to Appendix E). Any assistance required that cannot be provided by the local fire departments will be communicated to the Regional FMO.

VIII. WILDFIRE PROGRAM:

Fire Prevention:

The Park Fire Management Officer and Protection Division personnel have primary responsibility for fire prevention. The goal of fire prevention at MIMA is to minimize preventable fire. The occurrence of wildfires has been a rarity and when they have occurred generally involved less than one acre. The park does not contain appreciable acreages with fuel models prone to extreme fire behavior. Most of the fires that have occurred have been human caused, quite often cigarettes thrown from moving vehicles. Nevertheless, fires do occur in the park and there are definite resources, primarily cultural, at risk.

A wildfire prevention analysis is currently being conducted and

will result in a formal Fire Prevention Plan. This document, when finalized and approved in the spring of 1992, will be appended to this FMP. The specific actions that comprise MIMA's fire present prevention program include:

1. There is an ongoing program to clear 30 foot defensible zones around all historic structures.
2. A program to clear a fire break around the entire ten mile park boundary was begun in the summer of 1991. Further progress with this project depends upon receiving continued funding through regional fire accounts.
3. Camp or cooking fires are prohibited in the park except when allowed by the Superintendent:
4. High visibility ranger patrols are conducted at times of high visitation and in areas prone to related problems, (i.e., areas where local youths congregate and in the past have built fires for parties).
5. Materials from the 'Smokey Bear' program are placed in strategic places within the park (e.g., Battle Road Visitor and North Bridge Visitor Centers).
6. A guideline for black powder use ensures the safe use of same during interpretive demonstrations. Upon the recommendation of the Park FMO and Safety Officer, the Superintendent may suspend black powder demonstrations during periods of extreme fire danger.
7. Local fire departments are brought in to conduct fire safety instruction for new employees, including the use of various types of fire extinguishers. Permanent personnel benefit from this as a review.
8. Annual fire inspections of all fire extinguishers and park structures are conducted.
9. No fires are allowed in any of the fireplaces found in the historic structures within the park unless the chimneys have been inspected and/or are retrofitted with liners.
10. Chimneys for wood stoves within park structures, as well as the woodstoves themselves, are inspected and cleaned annually.
11. All special use permittees within the park are given copies of specific regulations concerning outside burning.
12. All park structures have fire detection systems with dedicated lines to local fire departments.
13. Fire regulations under Title 36 CFR are strictly enforced.

Potential Wildfire Behavior:

The park has a low incidence of wildfire. Since 1981 there have been just three reported wildfires, each comprising less than half an acre. Wildfires are most likely to occur during the normal fire season of March 1 to May 31 and September 30 to November 30. Fire Behavior Fuel Models 1, 3, 5, and 9 are present at MIMA. Fuel Model 3 (tall grass, 2 1/2 feet) probably poses the greatest threat for extreme fire behavior but is infrequently found on the park landscape. An evenly distributed average rainfall of 40-50 inches coupled with relatively high water tables further discourage the threat of extreme fire behavior. Wildfire would not likely travel far before reaching barriers such as roads, stone walls, wetlands or a river. Wildfire could threaten park buildings, especially historic structures, and adjacent private development. Smoke from a wildfire could obscure visibility on roadways, perhaps causing vehicle accidents, or precipitate respiratory problems in area residents.

Presuppression:

Red Card certification: Fitness testing for the red card is conducted in January. Personnel have the choice of taking the step test and/or running the 1.5 mile run. Employees will receive advance notice of fitness testing dates so as to allow for proper physical pre-conditioning. Since physical examinations are no longer funded through regional sources they are not mandatory. Qualifying personnel for the red card will be reported to the Regional Fire Management Officer by February 1st.

Fire Training: Fire training course announcements are posted for the information of affected personnel as they are received from the regional office. Employees are encouraged to apply for additional training to add to the park's talent pool and for career development. Newly hired seasonal personnel showing an interest in wildland fire management will be encouraged to apply for basic firefighter training. They will thereupon serve on the park suppression crew and are available for interagency fire duties. None of the park fire personnel are currently qualified beyond the basic firefighter level. There is a real need for the following courses: portable pumps, power saws and courses related to the various skills required of prescribed fire personnel. As these courses become available MIMA personnel will be nominated. There are no fire management instructors on staff and so the park totally relies upon outside sources of training.

Fire Management Equipment: The park fire cache is centrally located at the Noah Brooks Carriage House on Rt. 2A (North Great Road) in Lincoln. It contains the follow complement of equipment:

-Fire Shovels (22)
-Pulaskis (16)

-Council Rakes (19)
-Brush Hooks (9)

- Swedish Brush Axes (15)
- Swatters (5)
- Collapsible Back Pack Pumps (8)
- Chainsaws (2), (1 Solo, 1 Stihl)
- Gas powered brush cutters (2) (Stihl)
- 500 ft. of 1", NPSH synthetic forestry hose
- McCleod Tools (2)
- Single Bit Axes (8)

The park has a 1977 Dodge four wheel drive pickup truck which has been outfitted with a Wajax-Pacific 125 gallon slip-on pumper. The pumper has a fiberglass tank and 5 HP motor. All hose couplings are 1" NPSH. 500 feet of hose is carried on board with a variety of nozzles. The fire truck is fully outfitted with emergency response warning devices, fire and police radios, dry chemical fire extinguisher, selection of hand tools and a first aid kit. The pumper is not presently capable of drafting due to the lack of hard suction hose.

Each permanent red-carded firefighter is assigned their own personal protective equipment (PPE). The current PPE inventory does not allow equipping additional fire fighting personnel.

Additional chainsaws and hand tools are available on loan from the Maintenance Division if needed.

The Park FMO has the responsibility for maintaining proper condition of all related equipment. Gas powered tools are serviced and sharpened after each use. The fire truck receives routine maintenance (tune up, fluid and filter changes, etc.) on a scheduled basis. Hand tools are sharpened after each use.

Emergency Presuppression:

Fire Season: March 1 to May 31 and September 30 to November 30.

Fire Weather Reporting: The park established a fire weather station (# 190405) in the summer of 1991. Fire weather reporting begins in mid-February, starting in 1992. Fire weather indices are recorded daily at 1300. These indices are used to determine the daily fire danger (manning class) using the National Fire Danger Rating System (NFDRS). Fire Behavior Fuel Models #1 (short grass) and #9 (hardwood litter) are used for the NFDRS calculations. The calculations are made by entering the daily fire weather indices into the Administrative Forest Fire Retrieval and Management System (AFFIRMS). The burning index determines the level of readiness from the standpoint of fire equipment and personnel.

Step-Up Plan: The burning index determines the park's fire presuppression staffing and equipment level on a given day. Fuel model #1 indices will determine step-up actions. Because MIMA is not in an area of high historical wildfire occurrence a very simple Step-Up Plan is employed:

<u>Staffing Class:</u>	<u>Burning Index:</u>	<u>Step-Up Action:</u>
MC-1	0-11	-Normal tours of duty for protection personnel.
MC-2	12-22	-Normal tours of duty for protection personnel.
MC-3	23-55	-Normal tours of duty for protection personnel. -Increase number of backcountry foot patrols.
MC-4	56-71	-Post notice of high fire danger at the visitor centers. -Protection personnel must be on duty from at least 1300-1900 and in a ready response mode.
MC-5	72+	-One additional red-carded firefighter on duty between the hours 1300-1900. -Alert Concord, Lincoln and Lexington fire departments of extreme fire danger level in park.

At staffing class levels four and five, personnel and related costs can be charged against an emergency presuppression account. The Regional FMO will authorize use of this account when it becomes necessary.

Fire Detection:

The fire detection program is designed to detect wildfires as early as possible and maximize the impact of fire suppression activities on the resource.

Natural Resources: A highly structured and formalized detection program at Minute Man NHP is not warranted because of low fire occurrence, though the potential exists. The park lies in a very suburban area. The major portion of the park, the Battle Road Unit, straddles approximately four miles of state Rt. 2A through Lincoln and Lexington. It is very likely that any fire would be immediately noticed by traffic utilizing this major artery. Additionally, private residents, located throughout the park, would

probably detect and report fires before they became a serious threat, especially in areas not visible from town and state roads. Hanscom Airfield borders the park to the north and any fire activity would likely be noticed by any of the myriad aircraft flying over the park. In addition to relying upon detection by neighbors, park patrols will be increased as fire danger increases (MC-3, 4, and 5).

Cultural Resources: Though not directly related to wildfire it should be noted that all historic park structures are fitted with fire detection systems that have dedicated lines connecting them to area fire departments.

Fire Suppression:

The objective of fire suppression at MIMA is to suppress all wildfires at minimum size and cost consistent with values at risk while minimizing the impacts from suppression activities. Further, wildfire suppression is an emergency operation and takes precedence over all other park operations with the exception of safeguarding human life.

Suppression Strategy: The park will always employ the control strategy because it is in a suburban area interspersed with private dwellings and historic structures, and is frequently bordered by development. Minimum impact suppression and mop-up tactics will be employed especially in proximity to important cultural features and known archaeological sites (refer to NPS 18, Section III, Chapter 8, Exhibit #7).

Suppression Resources: There are currently four permanent employees red-carded at the basic firefighter level. Efforts are underway to similarly certify additional permanent personnel. Additional training to bring red-carded personnel up to the squad boss level will be undertaken as time and funding permit.

The three towns in which the park lies have fulltime, paid fire departments. Concord, Lincoln and Lexington all have brush trucks. The crews are familiar with fighting limited scale brush fires but have little to no experience in wildland fire suppression.

Unless a fire was of such a small magnitude that it could be suppressed and mopped up by the park suppression crew alone, the affected town fire department would always be requested. An MOU with each department has been developed and is appended to this FMP.

Incident Response:

-Dispatch: In the event of a wildfire the park FMO or duty

protection ranger dispatches the following in the order given:

- Red-carded personnel and equipment
- Fire department of town where the fire occurs
- Regional FMO

-Initial Response: The Park FMO directs all NPS fire personnel to the fire cache. Initial response includes all available park fire fighters and suppression equipment.

The park FMO, or in his/her absence the duty ranger, responds immediately to the fire scene to assess whether or not additional suppression resources are needed. The FMO or duty ranger will take command of the scene and deploy park personnel and resources. If the fire department is needed the FMO or duty ranger will contact them either directly by radio or indirectly through the North Bridge Visitor Center. Depending on the nature of the circumstances, the FMO may elect to notify the fire department to place them on standby.

Additional requests for support will be placed through the Regional FMO at (617)-223-5067, according to the NAR Regional Fire Mobilization Guide.

Rehabilitation:

A wildfire at MIMA would rarely cause severe impacts to the landscape. Fire would tend to work in support of the park's long range natural resource management goals by reducing woody vegetation (except in such places that were forested in 1775). The need for natural resource rehabilitation in most cases would be minimal. Wildfire does pose a threat to historic structures.

The greatest threat to park resources would be the use of heavy equipment and the construction of fireline to control the wildfire. These activities can damage archaeological resources, stone walls and other cultural features.

The following actions will be taken to mitigate the effects of wildfires and control activities:

- A fire qualified (basic firefighter) archaeologist will be called to the fire immediately upon its detection if it is in an area with known archaeological resources. This person will accompany the Incident Commander when fireline is to be constructed.

- If an archaeological resource is identified, attempts will be made to protect the resource by rerouting the fireline and flagging/roping off the site.

- After the fire is declared out, all constructed fire line

will be water breaked (if on a slope) and organic materials will be replaced on the fireline.

-All trash and equipment will be removed from the fire scene and disposed of properly.

Fire Cause Determination:

It is the responsibility of the Park FMO to investigate the cause of a suspicious fire. The publication 'Wildfire Cause and Determination Handbook' (NWCG Handbook 1) provides a good resource to consult in accomplishing this goal. If technical expertise is needed to determine the cause of a fire, a request for assistance will be placed through the Regional FMO.

Records and Reports:

The Regional FMO will be notified within 12 hours of a wildfire within the park. It is the responsibility of the Park FMO to file an Individual Fire Report (form DI-1202) for each fire occurrence. The report, signed by the Superintendent, is forwarded to the office of the Regional Director within 10 days following the terminus of the fire. The park maintains a record of each fire incident on file in the Chief Ranger's office and the park's main file. These records and all weather data will never be disposed of since they are a critical park database.

IX. MANAGEMENT IGNITED PRESCRIBED FIRE:

Background: Both the MIMA General Management and Resource Management Plans address the goal of historic landscape restoration and maintenance. In many instances this is being accomplished through the use of historic agricultural leasing. There are, however, certain tracts of park land that are unlikely to be leased for agricultural purposes because of poor site conditions such as soil quality/depth/drainage and size.

Part of the historic scene restoration involves the 25 miles of stone walls found throughout the park. Many of these walls are overgrown with vegetation and are slowly disintegrating through invasive root action and general neglect. To clear the walls through mechanical means is labor intensive and thus expensive.

Goals: The park proposes to conduct research burns to determine if prescribed fire is an effective and efficient alternative means to restore and maintain historic agricultural fields and/or reduce woody vegetation overgrowing stone walls.

Procedures:

1. This FMP identifies several proposed sites on which to conduct research burns. Refer to the chapter on Fire Management Units

for further discussion.

2. The Park FMO will prepare a research burn proposal according to the outline found in NPS 18, Section III, Chapter 6. Once completed this document will be forwarded to the Regional FMO for signatory approval.
3. In consultation with the Regional FMO, the Park FMO will complete a prescribed burn plan for each proposed research burn site. This document will be submitted to the Regional FMO for signatory approval and further disposition.
4. After the foregoing documents have been approved and all NHPA/NEPA considerations have been satisfied, research burns will be conducted pursuant to NPS 18, Section III, Chapter 5, Prescribed Fire and will be under the direct control of an NPS Prescribed Burn Boss. Fire personnel/equipment from the park and the involved municipal fire department will serve as the prescribed burn crew. Six to eight red-carded personnel and two pumpers will be onsite for any research burn conducted.
5. Fire weather indices used to determine whether a prescribed burn can be conducted under given conditions will be recorded at the MIMA fire weather station located in Lincoln.
6. Any research burns which exceed prescription parameters as set forth in the burn plan will be immediately suppressed.
7. All research burns will be reported to Branch of Fire and Aviation Management and to the Regional FMO within 24 hours on form DI-1202.
8. Post burn appraisals, both short and long term, will be conducted and used to determine if prescribed burning is an acceptable alternative means of restoration and/or maintenance of historic scenes at MIMA.
9. The park Superintendent will make a formal determination, based upon recommendations and input from the Regional FMO and related personnel, concerning whether or not to pursue a formal prescribed burn component to the fire management program. This will require an amendment to this FMP.

Regulatory Authority and Permit Acquisition:

-AIR QUALITY/SMOKE MANAGEMENT: All prescribed burn applications must meet the requisites set forth in the Clean Air Act (P.L. 88-206) and subsequent amendments. These air quality standards are enforced by state and local regulatory authorities.

The Massachusetts Department of Environmental Protection, Division of Air Quality has jurisdiction over air quality. State law regulating open burning can be found at 310 CMR 7.07 (Refer to Appendix F). In order to conduct a burn an Air Quality Permit must be obtained by contacting the Division's Northeast Regional Office, 5 Commonwealth Ave., Woburn, MA (617)-935-2160. They will request that a written letter of intent be submitted three weeks prior to the anticipated burn date. An official from same may request a site visit.

-BURN PERMIT: The Massachusetts Department of Environmental Management should also be contacted regarding proposed prescribed burn applications. This is the state agency charged with wildland fire management. A burn permit must be obtained from the Fire Chief in whose town the burn will take place.

X. FIRE RESEARCH AND MONITORING:

The past couple of years have been progressive ones at the park in the area of resource management and related research. The 1989 General Management Plan outlines very specific goals concerning historic landscape restoration and maintenance. A Landscape Management Plan should be completed in early 1992. A biological survey considering fauna, flora and wetlands is being conducted and should be completed in the fall of 1992.

One management tool being considered by the Park in the area of historic landscape restoration and maintenance is the use of prescribed fire. It is a technique not used heretofore at MIMA and therefore needs to be investigated to determine its potential value as an alternative means to achieve these goals. The park proposes to investigate this option by conducting several research burns on park land in the next couple of years, starting in the spring of 1992. The two applications for prescribed fire being considered are:

1. Clear and maintain open fields: An abandoned five acre agricultural field in Concord is proposed for researching this application (See description in FMU chapter in this FMP). The field has not been farmed for many years and is overgrown with a variety of grasses. The site is very representative of other sites in the Park that are candidates for historic scene restoration and maintenance. The remote distance from a high use road and presence of natural fire barriers make it an excellent site for prescribed burning.

Open fields not currently maintained under historic agricultural leasing are mowed by the park. This has to be done several times each summer and is labor intensive. This research burn would determine the effectiveness of fire in keeping back woody vegetation, identify the necessary

frequency of burning to be effective and identify post-burn vegetative species.

2. Clear woody vegetation around stonewalls: A one acre field in Lincoln containing a portion of a large, overgrown stone wall is proposed for researching this application of fire (see description in FMU chapter in this FMP). The site is a good one for a prescribed burn because of the distance from a road, existence of natural fire barriers and the presence of the fire weather station on an adjacent lot.

The 25 miles of stone walls at MIMA are an important feature on the cultural landscape. Over the years these walls have become overgrown with woody vegetation and this overgrowth is potentiating their disrepair. To mechanically remove the dense woody vegetation is extremely labor intensive. This research burn would allow park management to determine the effectiveness of fire in clearing this vegetation from the walls.

In order to conduct these burns the Park FMO will develop a research proposal for each site. Fire management and natural science personnel from the regional office will be consulted on technical matters. Once completed and recommended by the Superintendent the research proposals will be forwarded to the regional office for review and final signatory approval(s).

All research burns will be conducted and monitored by a NPS Prescribed Burn Boss. Indices used to determine when fire weather is within a given prescription are gathered from the MIMA fire weather station located in Lincoln.

Sites will be monitored for several years after each burn in order to determine the long term affects of fire. Multiple burns may be necessary to obtain the desired vegetative changes. Once short and long term effects have been evaluated park management will be in a much better position to make a judgement concerning whether or not to pursue a formal prescribed burn program. As the prescribed fire program evolves an educational video can be developed specifically for the park.

XI. PUBLIC SAFETY:

Overall public safety concerning fire management is the responsibility of the Chief, Division of Resource Management and Visitor Protection. During suppression or prescribed burn activities the Park FMO or Incident Commander is responsible for providing for the safety of park employees, visitors and area residents. He/she will appoint a Safety Officer at a given incident to assure that nonessential personnel stay well clear of hazardous areas.

Public safety is a large component of the fire prevention program. Public notification of high/extreme fire danger, clearing of defensible zones around publicly accessible buildings and maintenance of structural fire detection systems are all part of an effective public safety program.

XII. PUBLIC INFORMATION AND EDUCATION:

Any requests for information, emanating from the print or broadcast media, concerning either wildfire incidents or prescribed research fire applications will be referred to the Park FMO or other public information personnel as appointed by the Superintendent. The occurrence of a wildfire within a National Park often arouses media attention. All reasonable efforts will be made to allow for media access so long as public safety or that of firefighting personnel is in no way compromised.

The use of fire in research burns within the park will undoubtedly raise much public interest and/or concern within the local community. It is in this setting that a successful public education program can have the most positive impact. The Park FMO is responsible for overall outreach concerning the research burn program. Outreach will consist of press releases and open houses to discuss the issues. A way will sought to involve the Division of Interpretation in public education, perhaps by developing a slide show for outreach purposes or by incorporating fire ecology information into interpretive programs focusing on natural history.

XIII. ARCHAEOLOGICAL/CULTURAL/HISTORIC RESOURCES:

The cultural resources at Minute Man NHP are extensive and include: 13 historic structures present in 1775, 14 historic structures built after 1775, 13 commemorative monuments and markers, 46 archaeological sites, (38 historic and 8 prehistoric) and 25 miles of stone walls. The most significant cultural resource, the Battle Road, is hidden under the roadbed of the present-day route 2A.

Historic Buildings:

Building:	Constructed:
Before 1775	
Jacob Whittemore House	prior to 1745
William Smith House	1693
Ephraim Hartwell Tavern	1732
Job Brooks House	1760
Samuel Brooks House	1733
Olive Stowe House	1760
Farwell Jones House	prior to 1775
John Meriam House	1680
Wayside Barn	18 th century

Wayside House	1717
Elisha Jones House	early 18 th century
The Old Manse	1770
Major John Buttrick House	1715

After 1775

Hargrove Barn	19 th century
John Nelson House	1810
John Nelson Barn	1810
McHugh Barn	1820 foundation
Joshua Brooks House	1781
Noah Brooks Tavern	1810
Rogers Barn	1936
George Minot House	1865
East Quarter Schoolhouse	1854
Burke House	1920
Daniel Taylor House	1810
Buttrick Mansion	1911
Buttrick Caretaker's House	1911
Buttrick Carriage House	1911

Modern Park Structures:

Because of the relative wealth of existing structures, (some historic and others modern), in the park when it was established in 1959, many of those same buildings were minimally modified to accommodate park administrative, maintenance and employee housing needs. There have been three structures added by the Park Service since 1959:

Battle Road Visitor Center, constructed in 1975

North Bridge Comfort Station, constructed in 1985

Samuel Hartwell Chimney and Foundation Shelter, constructed in 1986

XIV. CONSULTATION AND COORDINATION:

The success of the fire management program at MIMA depends upon the valuable technical guidance provided by personnel from the regional office, particularly the Regional Fire Management Officer, Dan O'Brien. Regional personnel having expertise in and responsibility for natural sciences and cultural resources also play a vital role in fire program administration. MIMA fire personnel have gotten valuable support from other parks having active fire management programs. The park works very closely with the area municipal fire departments and all state/local regulatory agencies having jurisdiction over various aspects of wildland fire management.

APPENDIX A

Public Law 86-321
September 21, 1959

7. Minute Man National Historical Park

Establishment of park authorized-----Act of September 21, 1959 Page
219

An Act To provide for the establishment of Minute Man National Historical Park in Massachusetts, and for other purposes, approved September 21, 1959 (73 Stat. 590)

Whereas the outbreak of the War of the American Revolution was essential and prerequisite to the achievement of American independence and the creation of a Federal Government; and

Whereas the events relating to the beginning of Revolutionary hostilities on the 18th and 19th of April 1775, and associated with Paul Revere, the Minute Men, and the British are of great importance in American history; and

Whereas a number of historic properties, buildings, sites, and objects in Boston, Massachusetts, and the vicinity, thereof, including the road and roadsites between Lexington and Concord, are intimately connected with the events that opened the war, and consequently, merit preservation and interpretation in the public interest as prime examples of the Nation's historical heritage:

Therefore

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in order to preserve for the benefit of the American people certain historic structures and properties of outstanding national significance associated with the opening of the War of the American Revolution, Minute Man National Historical Park is hereby authorized to be established in the Commonwealth of Massachusetts.

Minute Man
National Historical Park
Establishment.

The park shall comprise not more than seven hundred and fifty acres as may be designated by the Secretary of the Interior from within the area beginning at Fiske Hill and thence lying along Massachusetts Avenue, Marrett Road and Marrett Street in the town of Lexington, along Nelson Road, Virginia Road, Old Bedford Road, and North Great Road or State Route 2-A in the town of Lincoln, and along Lexington Road, Monument Street, Liberty Street and Lowell Road in the town of Concord to and including the North Bridge and properties on both sides of the Concord River in the vicinity of the North Bridge. (16 U.S.C. § 410s [Supp. II].)

SEC. 2. The Secretary of the Interior is authorized to acquire by donation or with donated funds, or with funds

Acquisition
of land.

219

hereby authorized to be appropriated, lands and interests in lands within the area designated for the park. Administrative jurisdiction of Federal lands lying within the area designated for the park shall, with the concurrence of the Federal agency involved, be transferred to the Secretary of the Interior for administration as a part of the park.

Notice in F.R.

The park shall be established as Minute Man National Historical Park by notice in the Federal Register when the Secretary of the Interior finds that sufficient lands within the designated area have been acquired to warrant such establishment. (16 U.S.C. § 410t [Supp. II].)

Preservation of historic sites.

SEC. 3. To provide further for the preservation and interpretation of historic sites, structures, and properties lying along the entire route or routes where significant events occurred on the 18th and 19th of April 1775, in the cities of Boston, Cambridge, Medford, and Somerville, and the towns of Arlington, Brookline, Concord, Lexington, and Lincoln, including the area generally described in section 1 as lying between Fiske Hill and the North Bridge, the Secretary of the Interior is authorized, in accordance with the purposes of this Act, to enter into cooperative agreements with the Commonwealth of Massachusetts, political subdivisions thereof, corporations, associations, or individuals, and to erect and maintain tablets or markers, in accordance with provisions contained in the Act approved August 21, 1935, entitled "An Act to provide for the preservation of historic American sites, buildings, objects, and antiquities of national significance, and for other purposes" (49 Stat. 666). (16 U.S.C. § 410u [Supp. II].)

16 U.S.C. 461-468e.

Advisory commission.

SEC. 4. The Secretary of the Interior is authorized to appoint an advisory commission of five members to advise him on the development of Minute Man National Historical Park, to consist of one member to be recommended by the selectmen of each of the towns of Concord, Lexington, and Lincoln, Massachusetts; one member to be recommended by the Governor of the Commonwealth of Massachusetts; and one member to be designated by the Secretary. (16 U.S.C. § 410v [Supp. II].)

Administration.

SEC. 5. When established pursuant to this Act, the park shall be administered, protected, and developed by the Secretary of the Interior in accordance with the provisions of the Act of August 25, 1916 (39 Stat. 535; 16 U.S.C. 1-4), as amended and supplemented, and the Historic Sites Act of August 21, 1935 (49 Stat. 666; U.S.C. 461-467). (16 U.S.C. § 410w [Supp. II].)

Appropriation.

SEC. 6. There are hereby authorized to be appropriated such sums, but not more than \$8,000,000, as may be needed for the acquisition of lands and interests in lands

III. NATIONAL HISTORICAL PARKS—MINUTE MAN

and for development of the Minute Man National Historical Park, of which not more than \$5,000,000 shall be used for acquisition purposes, and in addition thereto, such sums as may be needed for its administration and maintenance. (16 U.S.C. § 410x [Supp. II].)

APPENDIX B

DOMINANT SOIL SERIES FOR MINUTE MAN NATIONAL HISTORICAL PARK

source: Middlesex County, Massachusetts Interim Soil Survey Report, 2nd edit.

CANTON series consists of nearly level to very steep, deep (5+ ft.), well drained soils on uplands. They formed in glacial till, ground moraine and ice-contact stratified drift. Canton soils have friable fine sand loam surface soil and subsoil with moderately rapid permeability, over a loamy coarse sand to loamy fine sand substratum at 18 to 36 inches with rapid permeability. Canton soils have a very stony or extremely stony surface, except where stones have been removed and have stones below the surface. Major limitations are related to slope and stoniness.

DEERFIELD series consists of nearly level gently sloping, deep (5+ ft.) moderately well drained soils on glacial outwash plains, terraces, and deltas. They formed in sands. Deerfield soils have loamy fine sand to sand surfaces soil and subsoil with a rapid permeability, over a loamy sand to coarse sand substrata with very rapid permeability. They have a seasonal high water table at 18 to 36 inches. Major limitations are related to wetness.

FREETOWN series consists of nearly level, deep (5+ ft.), very poorly drained organic soils in depressions and on flat areas of uplands and glacial outwash plains. They formed in 51 inches to many feet of black, highly decomposed organic material (muck) over sandy or loamy mineral material. Permeability is moderate or moderately rapid. They have a water table which is at or near the surface most of the year. Major limitations are related to wetness and low strength.

HINCKLEY series consists of nearly level to very steep, deep (5+ ft.), excessively drained soils on glacial outwash plain, terraces, kames, and eskers. They formed in gravelly and cobbly coarse textured glacial outwash. Hinckley soils have friable or loose, gravelly and very gravelly sandy loam to loamy coarse sand surface soil and subsoil with rapid permeability, with loose stratified sands and gravels in the substratum at 12 to 30 inches which have very rapid permeability. Major limitations are related to slope and droughtiness.

MONTAUK series consists of nearly level to steep, deep (5+ ft.), well drained soils on drumlins, or rounded and elongated hills. They formed in compact glacial till. Montauk soils have friable fine sandy loam surface soil and subsoil that have moderate or moderately rapid permeability over a firm loamy coarse sand to sandy loam substratum (hardpan) at 18 to 36 inches with moderately slow or slow permeability. Montauk soils have a very stony or extremely stony surface except where stones have been removed, and have stones below the surface. Major limitations are related to slow permeability in the substratum, stoniness and slope.

SACO series consist of nearly level, deep (5+ ft.), very poorly drained soils on floodplains. They formed in recent silty alluvium that is high in organic matter. Saco soils have mucky silt loam or silt loam surface soil with moderate permeability, over a silt loam or very fine sandy loam substratum

with moderate permeability, underlain at 40 to 60 inches by stratified sand and gravel with rapid permeability. These soils have a high water table that is at or near the surface most of the year and are frequently flooded. Major limitations are related to flooding and wetness.

SCIO series consists of nearly level and gently sloping, deep (5 + ft.), moderately well drained soils on glacial outwash terraces, alluvial fans and lake beds. They formed in glacial outwash, lacustrine, and aeolian deposits. Scio soils have silt loam or very fine sandy loam surface soil, subsoil and substratum with moderate permeability. The substratum is underlain at 40 to 60 inches with stratified sand and gravel. They have a seasonal high water table at 18 to 24 inches. Major limitations are related to wetness.

WINDSOR series consist of nearly level to very steep, deep (5 + ft.), excessively drained soils on glacial outwash plains, terraces, deltas and escarpments. They formed in sandy glacial outwash. Windsor soils have a very friable or loose loamy sand or loamy fine sand surface soil, very friable or loose loamy fine sand to sand subsoil over a very friable or loose sand or fine sand substratum to a depth of 60 inches or more. They have rapid permeability. Major limitations are related to droughtiness and slope.

APPENDIX C: FLORA

TREES:

Eastern Hemlock
White Pine
Pitch Pine
Red Cedar
White Ash
Black Locust
Staghorn Sumac
Sweet Pignut Hickory
Poison Sumac
Red Maple
Silver Maple
Norway Maple
Sugar Maple
Variable Thorn
Witch-Hazel
Swamp Oak
White Oak
Scrub Oak
Scarlet Oak
Black Oak
Red Oak
Sour-Gum
Alternate-Leaved Dogwood
Quaking Aspen
Bigtooth Aspen
Black Willow
Bebb Willow
Pussy Willow
American Elm
Gray Birch
Paper Birch
Black Birch
Black Cherry
Choke-Cherry
Pin Cherry
Chesnut
Common Shadbush

Tsuga canadensis
Pinus strobus
Pinus rigida
Pinus virginiana
Fraxinus americana
Robinia pseudo-acacia
Rhus typhina
Carya ovalis
Rhus vernix
Acer rubrum
Acer saccharinum
Acer plantanoides
Acer saccharum
Crataegus macrosperma
Hamamelis virginiana
Quercus bicolor
Quercus alba
Quercus ilicifolia
Quercus coccinea
Quercus velutina
Quercus rubra
Nyssa sylvatica
Cornus alternifolia
Populus tremuloides
Populus grandidentata
Salix nigra
Salix bebbiana
Salix discolor
Ulmus americana
Betula populifolia
Betula papyrifera
Betula lenta
Prunus serotina
Prunus virginiana
Prunus pensylvanica
Castanea dentata
Amelanchier canadensis

SHRUBS:

Common Elder
Mapleleaf Viburnum
Sheep Laurel
Buttonbush
Morrow Honeysuckle
Gray Dogwood
Silky Dogwood
Northern Arrowwood
Witherod
Common Buckthorn
Multiflora Rose
Shining Rose
Swamp Rose
Pasture Rose
Virginia Rose
Hoptree
Poison Ivy
Smooth sumac

Sambucus canadensis
Viburnum acerifolium
Kalmia angustifolia
Cephalanthus occidentalis
Lonicera morrowi
Cornus racemosa
Cornus amomum
Viburnum recognitum
Viburnum cassinoides
Rhamnus cathartica
Rosa multiflora
Rosa nitida
Rosa palustris
Rosa carolina
Rosa virginiana
Ptelea trifoliata
Rhus radicans
Rhus glabra

European barberry
 Sweetfern
 Wand Willow
 Prairie Willow
 Slender Willow
 Swamp Azalea
 Black Huckleberry
 Leatherleaf
 Maleberry
 Common Spicebush
 Glossy Buckthorn
 Black Highbush Blueberry
 Common Highbush Blueberry
 Dryland Blueberry
 Lowbush Blueberry
 American Hazelnut
 Beaked Hazelnut
 Speckled Alder
 Smooth Alder
 Sweet Gale
 Sweet Pepperbush
 Hardhack
 Broadleaf Meadowsweet
 Chokeberry
 Common Winterberry
 Virginia Creeper
 Common Greenbrier
 Bitter Nightshade
 American Bittersweet
 Fox Grape
 Red Raspberry
 Black Raspberry
 Swamp Dewberry
 Northern Dewberry
 Allegheny Blackberry
 Pennsylvania Blackberry
 Large Cranberry

Berberis vulgaris (naturalized)
Comptonia peregrina
Salix rigida
Salix humilis
Salix petiolaris
Rhododendron viscosum
Gaylussacia baccata
Chamaedaphne calyculata
Lyonia ligustrina
Lindera benzoin
Rhamnus frangula
Vaccinium atrococcum
Vaccinium corymbosum
Vaccinium vacillans
Vaccinium angustifolium
Corylus americana
Corylus cornuta
Alnus rugosa
Alnus serrulata
Myrica gale
Clethra alnifolia
Spiraea tomentosa
Spiraea latifolia
Aronia arbutifolia
Ilex verticillata
Parthenocissus quinquefolia
Smilax rotundifolia
Solanum dulcamara
Celastrus scandens
Vitis labrusca
Rubus idaeus
Rubus occidentalis
Rubus hispidus
Rubus flagellaris
Rubus alleghaniensis
Rubus pensilvanicus
Vaccinium macrocarpon

For a more exhaustive listing of Concord area flora refer to A Flora of Concord by Richard Jefferson Eaton, special publication No. 4, Museum of Comparative Zoology, Harvard University, copyright 1974.

The above listing of flora is drawn from Concord Area Shrubs and Concord Area Trees by Ray Angelo.

Appendix D: Fauna of Minute Man NHP

Mammals:

Virginia Opossum
Hairytail Mole
Starnose Mole
Eastern Mole
Masked Shrew
Smoky Shrew
Least Shrew
Shorttail Shrew
Little Brown Myotis
Keen Myotis
Small-Footed Myotis
Eastern Pipistrel
Big Brown Bat
Silver-Haired Bat
Hoary Bat
Red Bat
Raccoon
Shorttail Weasel
Longtail Weasel
Mink
River Otter
Striped Skunk
Red Fox
Gray Fox
Woodchuck
Eastern Chipmunk
Red Squirrel
Eastern Gray Squirrel
Southern Flying Squirrel
Northern Flying Squirrel
Beaver
White-Footed Mouse
Southern Bog Lemming
Boreal Redback Vole
Meadow Vole
Pine Vole
Muskrat
Norway Rat
Black Rat
House Mouse
Meadow Jumping Mouse
Woodland Jumping Mouse
Snowshoe Hare
European Hare

Eastern Cottontail
New England Cottontail
Whitetail Deer

Amphibians:

Blue-Spotted Salamander
Spotted Salamander
Red-Backedd Salamander
American Toad
Northern Spring Peeper
Eastern Gray Treefrog
Bullfrog

Didelphis virginiana
Parascalops breweri
Condylura cristata
Scalopus aquaticus
Sorex cinereus
Sorex fumeus
Cryptotis parva
Blarina brevicauda
Myotis lucifugus
Myotis keeni
Myotis subulatus
Pipistrellus subflavus
Eptesicus fuscus
Lasionycteris noctivagans
Lasiurus cinereus
Lasiurus borealis
Procyon lotor
Mustela erminea
Mustela frenata
Mustela vison
Lutra canadensis
Mephitis mephitis
Vulpes fulva
Urocyon cinereoargenteus
Marmota monax
Tamias striatus
Tamiasciurus hudsonicus
Sciurus carolinensis
Glaucomys volans
Glaucomys sabrinus
Castor canadensis
Peromyscus leucopus
Synaptomus cooperi
Clethrionomys gapperi
Microtus pennsylvanicus
Pitymys pinetorum
Ondatra zibethica
Rattus norvegicus
Rattus rattus
Mus musculus
Zapus hudsonius
Napaeozapus insignis
Lepus americanus
Lepus europaeus

Sylvilagus floridanus
Sylvilagus transitionalis
Odocoileus virginianus

Ambystoma laterale
Ambystoma maculatum
Plethodon cinereus cinereus
Bufo americanus americanus
Hyla crucifer crucifer
Hyla versicolor versicolor
Rana catesbeiana

Green Frog
Northern Leopard Frog
Pickerel Frog
Wood Frog

Reptiles:

Snapping Turtle
Stinkpot
Spotted Turtle
Wood Turtle
Eastern Painted Turtle
Blanding's Turtle
Northern Water Snake
Eastern Garter Snake
Northern Ringneck Snake
Northern Black Racer
Eastern Milk Snake

Fish:

American Eel
Brook Trout
Brown Trout
Rainbow Trout
Chain Pickerel
Redfin Pickerel
Carp
Fallfish
Golden Shiner
Common Shiner
Bridle Shiner
White Sucker
Lake Chubsucker
Brown Bullhead
Yellow Bullhead
White Perch

Largemouth Bass
Smallmouth Bass
Pumpkinseed
Redbreast Sunfish
Bluegill
Banded Sunfish
Black Crappie
Yellow Perch
Tessellated Darter

Birds:

Herons:

Great Blue Heron
Green-backed Heron
Black-crowned Night Heron

Geese- Ducks:

Canada Goose
Wood Duck
Green-winged Teal
American Black Duck
Mallard
Blue-winged Teal

Rana clamitans melanota
Rana pipiens pipiens
Rana palustris
Rana sylvatica

Chelydra serpentina
Sternotherus odoratus
Clemmys guttata
Clemmys insculpta
Chrysemys picta picta
Emydoidea blandingi
Natrix sipedon sipedon
Thamnophis sirtalis sirtalis
Diadophis punctatus edwardsi
Coluber constrictor constrictor
Lampropeltis doliaata triangulum

Anguilla rostrata
Salvelinus fontinalis
Salmo trutta
Salmo gairdneri
Esox niger
Esox americanus americanus
Cyprinus carpio
Semotilus corporalis
Notemigonus crysoleucas
Notropis cornutus
Notropis bifrenatus
Catostomus commersoni
Erimyzon sucetta
Ictalurus nebulosus
Ictalurus natalis
Morone americana

Micropterus salmoides
Micropterus dolomieu
Lepomis gibbosus
Lepomis auritus
Lepomis macrochirus
Enneacanthus obesus
Pomoxis nigromaculatus
Perca flavescens
Etheostoma olmstedii

Gulls- Terns:

Herring Gull
Great Black-backed Gull

Doves- Swifts:

Mourning Dove
Chimney Swift

Woodpeckers- Flycatchers:

Downy Woodpecker

Hawks:

Broad-winged Hawk
Red-tailed Hawk

Pheasant- Quail:

Ring-necked Pheasant
Northern Bobwhite

Rails- Cranes:

Sora
American Coot

Plovers- Sandpipers:

Spotted Sandpiper
Killdeer
Least Sandpiper

Kinglets- Thrushes- Thrashers:

Ruby-crowned Kinglet
Wood Thrush
American Robin
Gray Catbird
Northern Mockingbird

Waxwings- Shrikes- Starlings:

Cedar Waxwing

Vireos- Wood Warblers:

Warbling Vireo
Red-eyed Vireo
Yellow Warbler
Yellow-rumped Warbler
Palm Warbler
Blackpoll Warbler
Black-and-White Warbler
American Redstart
Common Yellowthroat

Tanagers- Sparrows:

Scarlet Tanager
Rose-breasted Grosbeak
Rufous-sided Towhee
American Tree Sparrow
Chipping Sparrow
Savannah Sparrow
Song Sparrow
Swamp Sparrow
White-throated Sparrow
Dark-eyed Junco

Hairy Woodpecker
Northern Flicker
Willow Flycatcher
Eastern Phoebe
Eastern Kingbird

Larks- Swallows- Jays- Crows:

Tree Swallow
Bank Swallow
Barn Swallow
Blue Jay
American Crow

Titmice- Nuthatches- Wrens:

Black-capped Chickadee
Tufted Titmouse
White-breasted Nuthatch
House Wren
Marsh Wren

Blackbirds- Finches:

Bobolink
Rusty Blackbird
Common Grackle
Brown-headed Cowbird
Northern Oriole
American Goldfinch
House Sparrow

source for bird listings: Great Meadows National Wildlife Refuge bird list

APPENDIX E

MEMORANDUM OF UNDERSTANDING

Between

Minute Man National Historical Park

and

Concord Fire Department

Background

A. Purpose:

1. The purpose for this Memorandum of Understanding (hereinafter MOU) is to provide personal services and equipment required for wildland and structural fire suppression and the protection of life and property from fire on lands administered by Minute Man National Historical Park (hereinafter Park) and, in some cases, to nearby fire prevention agencies.

B. Authority:

1. The statutes found at 42 U.S.C. 1856 and 16 U.S.C. 1b(1) provide authority for the National Park Service (hereinafter NPS) to enter into reciprocal agreements and to render emergency fire fighting and cooperative assistance to nearby fire prevention agencies to extinguish fires and preserve life and property.

The Park's enabling legislation, Public Law 86-321, allows the Park to "...enter into cooperative agreements with the Commonwealth of Massachusetts, political subdivisions thereof..." for purposes of furthering preservation, including fire protection, of historic structures and lands.

2. The Chief of the Concord Fire Department (hereinafter Department) has signature authority to enter into agreements with the Park regarding fire prevention and suppression services on Park administered lands.
3. The Park Superintendent has signature authority to enter into agreements with the Concord Fire Department, and/or Town of Concord regarding fire prevention and suppression services on Park administered lands and to provide reciprocal assistance.

II. Statement of Work

A. Fire On Park Administered Lands:

1. In the event of a structural or wildland fire, the Department Agrees to:
 - a. Respond to the fire with a minimum of one pumper unit and qualified crew with safety and fire fighting equipment.
 - b. Cooperate with park staff in the immediate suppression of the fire.
 - c. In the case of wildland fire recognize that Park/NPS policies and requirements may necessitate special or unique fire fighting procedures that may differ from Department procedures. The Department will adhere to Park/NPS requirements when requested to do so by the Park Superintendent or designated representative. For purposes of this MOU, the following persons will be considered, in descending order as the Superintendent's designated representative:
 - 1) Daniel Dattilio, Chief Park Ranger
 - 2) Matt Poole, Fire Management Officer
 - 3) Flo Smith, Protection Ranger
2. The Park agrees to:
 - a. Provide qualified wildland fire fighting personnel with safety and fire fighting equipment. The Park possesses neither structural fire fighting personnel nor structural fire fighting equipment.
 - b. Cooperate and coordinate with the Department personnel in suppression and rescue activities.
 - c. Solicit and accept recommendations from the Department command personnel in suppression and rescue procedures, insofar as they do not conflict with Park/NPS policies. For purposes of this MOU, the Department command personnel consist of Chief Richard Ryan and/or his designee.

B. Fire Adjacent to Exterior Park Boundaries:

1. In the event of a wildland fire on lands in Concord other than those located within the boundaries of the Park, the Park agrees to:
 - a. Respond to the fire with available qualified personnel in suppression of the fire.
 - b. Cooperate with Department personnel in suppression of the fire.
 - c. Recognize and follow orders from the Department command personnel or appropriate city/State authority.
2. The Department agrees to:
 - a. Establish a clear command structure and provide orders and instructions to Park personnel.
 - b. Consult with Park Superintendent or designated representative if the fire threatens Park administered property.

C. Operations:

1. Suppression personnel/equipment will be activated as follows:
 - a. Park will request assistance by contacting the Department Dispatcher at 9-1-1.
 - b. Department will request assistance by contacting Park Headquarters at (508)-369-6993. Between the hours of 1700 and 0800 or on weekends or Federal holidays, the following order shall be followed until contact is established:
 - 1) Residence, Chief Ranger (617)-861-1487
 - 2) Residence, Fire Mgmt. Off. (617)-259-9633
 - 3) Residence, Protection Ranger (508)-371-0736

D. General Provisions:

1. The Park and Department mutually agree to the following:

- a. In the execution of this MOU, employees or agents of the Department are not considered employees of the Park or NPS.
- b. The Park and Department shall not be bound to make expenditures to each other for any services provided under this MOU.
- c. The Park and Department waive all claims against each other for compensation for any loss, damage, personal injury, or death occurring in consequence of activities pursuant to this MOU.
- d. Personal protection equipment will be provided to their employees by the respective parties to this MOU.
- e. May participate in joint training exercises/drills in areas covered by this MOU.
- f. Periodically review effectiveness of this MOU.

E. Agreement Evaluation:

1. The parties will review the results of this MOU at the end of each calendar year. The MOU may be amended at any time by the written mutual consent of the parties. The approved amendment will immediately become part of this MOU.

III. Term of MOU

- A. The term of this MOU is five (5) years, commencing upon the date of signature of the final signatory party to the MOU.

IV. Key Officials

A. Park

1. The Superintendent has authority and responsibility for managing this MOU on behalf of the Park. Telephone (508)-369-6993.

B. Department

1. The Chief, Concord Fire Department has the authority and responsibility for managing this MOU on behalf of the

Department. Telephone (508)-369-4054.

Reports

- A. Each party is responsible for its respective timekeeping and other required reports.

I. Termination

- A. This MOU may be terminated by either party by providing sixty (60) days notice to the other party.

II. Required Clauses

- A. No member or delegate to Congress, or resident Commissioner, shall be admitted to any share or part of this agreement, or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.
- B. During the performance of this agreement, the participants agree to abide by the terms of Executive Order 11246 on nondiscrimination and will not discriminate against any person because of race, color, religion, sex or national origin. The participants take affirmative action to ensure that applicants are employed without regard to their race, color, religion, sex or national origin.

12/04/91

Date

12-2-91

Date

Richard F. Gynn, Chief
Chief, Concord Fire Department

Lawrence D. Hall
Superintendent, Minute Man NHP

Massachusetts Open Burning Regulations

APPENDIX F

7.06: continued

in no case, shall exceed 20% opacity for a period or aggregate period of time in excess of 2 minutes during any one hour provided that, at no time during the said 2 minutes shall the opacity exceed 40%.

(2) From Incinerators.

(a) No person shall cause, suffer, allow, or permit the emission of smoke from any incinerator which has a shade, density, or appearance equal to or greater than No. 1 of the Chart or exceeding 20% opacity at any time.

(b) No person shall cause, suffer, allow or permit the operation of an incinerator so as to emit contaminant(s), exclusive of uncombined water or smoke subject to 310 CMR 7.06(2)(a) of such opacity which, in the opinion of the Department, could be reasonably controlled through the application of modern technology of control and a good Standard Operating Procedure.

(c) No person shall cause, suffer, allow, or permit emissions from any incinerator of any particles that have a dimension equal to or greater than 100 microns.

(3) From Marine Vessels. Marine vessels shall be subject to the provisions of 310 CMR 7.06(1)(a) and 7.06(1)(b). This regulation shall apply only in the Merrimack Valley Air Pollution Control District, Metropolitan Boston Air Pollution Control District, and the Southeastern Massachusetts Air Pollution Control District.

(4) From Aircraft. After December 31, 1972, no person shall cause, suffer, allow, or permit the emission from an aircraft of smoke which has a shade, density, or appearance equal or greater than No. 2 of the Chart for a period of time in excess of ten seconds during landing, takeoff, or taxiing operations.

(5) From Spark-Ignited Internal Combustion Engines.

(a) No person shall cause, suffer, allow, or permit emission of visible air contaminants, other than water, from internal combustion engines of:

1. portable or stationary equipment, other than motor vehicles, for longer than (10) consecutive seconds; or
2. a motor vehicle after the vehicle has moved more than 100 feet from a place where the vehicle was stationary; or
3. a motor vehicle, for more than five (5) consecutive seconds, under any condition of cruising or acceleration.

(6) From Diesel Engines. No person shall cause, suffer, allow, or permit excessive emission of visible air contaminants, other than water, from a diesel engine.

7.07: U Open Burning

(1) No person shall cause, suffer, allow or permit the open burning of any combustible material.

(2) 310 CMR 7.07(1) shall not apply to:

- (a) open burning for the purpose of combating or backfiring an existing fire by persons affiliated with an official fire fighting agency;
- (b) open burning conducted primarily for cooking purposes, or
- (c) open burning related to the operation of devices such as blowtorches and welding torches, for which no alternative source of heat can be used, provided that such devices do not cause a condition of air pollution.

(3) Except during periods of adverse meteorological conditions as may be determined by the Department when direct or public notice thereof has been made by the Department through the news media, 310 CMR 7.07(1) shall not apply to open burning conducted for:

- (a) training or research in fire protection or prevention with specific approval by the Department;
- (b) activities associated with the normal pursuit of agriculture which have been determined by the Department as necessary and which include but are not limited to, open burning of blueberry patches for pruning purposes, dead

7.07: continued

raspberry stalks, fruit tree prunings, and infected beehives for disease control;

(c) open burning of brush and trees resulting from agricultural land clearing operations;

(d) the disposal of fungus-infected elm wood provided that no suitable alternative method of disposal is available;

(e) the disposal of brush, cane, driftwood, and forestry debris excluding grass, hay, leaves, and stumps from January 15 to May 1 of each year. All such open burning shall be conducted:

1. on land proximate to the place of generation,
2. at a location greater than 75 feet from any dwelling, and
3. between ten o'clock A.M. and four o'clock P.M.

No such open burning shall apply to commercial or institutional land clearing for non-agricultural purposes.

Open burning under 310 CMR 7.07(3)(e) shall not be permitted in the Cities and Towns of Arlington, Belmont, Boston, Brookline, Cambridge, Chelsea, Chicopee, Everett, Fall River, Holyoke, Lawrence, Lowell, Malden, Medford, New Bedford, Newton, Somerville, Springfield, Waltham, Watertown, West Springfield, and Worcester, or where the Department has notified a city or town that:

1. open burning under this provision may cause or contribute to non-attainment of federal or state ambient air quality standards for total suspended particulates,
2. open burning under this provision may cause or contribute to a condition of air pollution, or
3. open burning under this provision is not permitted due to continued violations of the provisions for the proper conduct of such open burning. (Such action shall be taken only after said city or town has been given written notification of such violations and has in the opinion of the Department failed to take appropriate actions to prevent the continuance of such violations.)

Upon request of the Department the permitting authority of any City or Town shall notify the Department of the number of permits issued during any burning period.

(f) the disposal of combustible material with the approval of the Department and after demonstration to the satisfaction of the Department that no alternative suitable method of disposal is available;

(g) open burning as described in 310 CMR 7.07(3)(a) through 310 CMR 7.07(3)(f) must be conducted:

1. during periods of good atmospheric ventilation,
2. without causing a nuisance,
3. with smoke minimizing starters if starters or starting aids are used, and
4. under the provisions of a properly executed permit issued under the provisions of Section 13 of Chapter 48 of the General Laws.

(4) Except as may be incidental to compliance with the provisions contained in 310 CMR 7.07(2) and 310 CMR 7.07(3) no person shall stack, place, or store combustible material in such manner as to cause or allow presumption by the Department that such material may be subject to reduction by open burning.

(5) Notwithstanding the provisions of 310 CMR 7.07(3), no person shall cause, suffer, allow or permit open burning at any refuse disposal facility other than an incinerator as described in Section 150A of Chapter 111 of the General Laws.

Section 13 of Chapter 48, Massachusetts General Laws provides in part:

1. such permits may not be granted for more than two days from the date of issue, and
2. a written record must be maintained for each permit including the date of permit issuance, name and address of the person receiving the permit including the location and type of materials to be burned, and
3. such records must be available for public inspection.

7.07: continued

(6) 310 CMR 7.07(1) through 7.07(5) are subject to the enforcement provisions specified in 310 CMR 7.52.

7.08: U Incinerators

(1) General.

(a) No person shall cause, suffer, allow, or permit the construction or substantial reconstruction or alteration of any incinerator for which:

1. the design for construction or substantial reconstruction or alteration thereof, and
2. the Standard Operating Procedure have not been approved by the Department in writing.

(b) No person shall sell or distribute for sale any special incinerator or modular incinerator, for installation or use within the District, the design and Standard Operating Procedure for which have not been approved in writing by the Department or certification of said approval has not been given by the person selling or distributing the incinerator to the person to whom the sale or distribution is made.

(c) No person shall cause, suffer, allow, or permit the burning of refuse or any other material in any incinerator in a manner that is not in conformance with a Standard Operating Procedure (for the incinerator) that has been approved by the Department in writing.

(d) No person shall cause, suffer, allow, or permit the burning of refuse or any other material in any incinerator, other than a municipal incinerator, which is of a design that has not been approved by the Department in writing.

(e) No person shall cause, suffer, allow, or permit the burning of refuse or any other material in an incinerator at a specific site location that, in the opinion of the Department, is likely to cause or contribute to a condition of air pollution and when the person responsible for the operation of the incinerator has been notified of said opinion.

(f) 310 CMR 7.08(1)(c) and 7.08(1)(d) are subject to the enforcement provisions specified in 310 CMR 7.52, insofar as they pertain to domestic incinerators.

(g) No person shall cause, suffer, allow, or permit emissions from any incinerator of any particles that have a dimension greater than 100 microns. (Be referred to 310 CMR 7.06(2))

(2) Municipal Incinerators.

(a) No person shall cause, suffer, allow, or permit the construction or substantial reconstruction or alteration or thereafter the operation of a municipal incinerator for which the site location has not been approved by the Department in writing.

(b) No person shall cause, suffer, allow or permit the operation of a municipal incinerator unless said incinerator has complied with the provisions of 310 CMR 7.02.

(c) Tests for determining emission contaminant concentrations shall be conducted in a manner as specified in 310 CMR 7.02.

(3) Commercial, Industrial, and Special Incinerators. No person shall cause, suffer, allow, or permit the construction or substantial reconstruction or alteration or thereafter the operation of a commercial, industrial, or special incinerator for which the site location has not been approved by the Department in writing.

(4) Hazardous Waste Incinerators

(a) No person shall construct, reconstruct, alter, or modify or operate, or cause, suffer, allow or permit the construction, reconstruction alteration, modification, or operation of, any hazardous waste incinerator unless such construction, reconstruction, alteration, modification, or operation is in compliance with:

1. 310 CMR 7.01, 7.08(4), and all other provisions of these Regulations.
2. the terms of a Department approval granted pursuant to these Regulations.

resulting from compliance, and that granting such a variance would have no significant deleterious effect on public health.

(3) Variances where granted, shall:

- (a) be in writing.
- (b) not extend beyond May 31, 1975, or such later date as may be prescribed by Federal law,
- (c) be subject to the approval of the administrator of the Environmental Protection Agency.

The applicant shall assume all costs such as, but not limited to, the publishing of legal notices incidental to the application for and granting of a variance.

7.51: U Hearings Relative to Orders and Approvals

(1) The Department will grant a hearing, upon application in writing, for the purpose of reconsideration to any person to whom an ORDER has been issued, provided that such application is made within ten (10) days of the receipt of the ORDER.

(2) Upon receipt of a proposal for the construction, substantial reconstruction or alteration of any facility regulated by the Department of Public Utilities, insofar as the facility may have an impact on air quality, the Department shall hold a public hearing prior to consideration for approval or disapproval of said facility.

7.52: U Enforcement Provisions.

Any police department, fire department, board of health officials, or building inspector or his designee acting within his jurisdictional area is hereby authorized by the Department to enforce, as provided for in Section 142B of Chapter 111, any regulation in which specific reference to 310 CMR 7.52 is cited.

(7.53 through 7.59: Reserved)

7.60: U Severability

Each of these regulations shall be construed as separate to the end that if any regulation or sentence, clause, or phrases thereof shall be held invalid for any reason, the remainder of that regulation and all other regulations shall continue in full force.

REGULATORY AUTHORITY

M.G.L. c. 111, s. 142A - J.

