

XIV. APPENDICES

APPENDIX A

A. ACRONYMS AND ABBREVIATIONS

FMO	Area Fire Management Officer (located at Indiana Dunes)
ATV	All-terrain vehicle
BLM	Bureau of Land Management
CFFDS	Canadian Forest Fire Danger Rating System
CFR	Code of Federal Regulations
DNR	Michigan Department of Natural Resources
DO	Director Order, National Park Service
DOI	Department of the Interior
EA	Environmental Assessment
FAA	Federal Aviation Administration
FMP	Fire Management Plan
FMO	Fire Management Officer
FMU	Fire Management Unit
FUMA	Fire Use Manager
GIS	Geographical Information System
GMP	General Management Plan
ICP	Incident Command Post
IMT	Incident Management Team
IQCS	Incident Qualification and Certification System
LCES	Lookouts – Communication – Escape Routes – Safety Zones
LTAN	Long Term Fire Behavior Analyst
MDEQ	Michigan Department of Environmental Quality
MDNR	Michigan Department of Natural Resources
MIST	Minimum Impact Suppression Tactics
MMA	Maximum Manageable Area
mph	Miles Per Hour
MSL	Mean Sea Level
MWRO	Midwest Regional Office, National Park Service
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NFDRS	National Fire Danger Rating System
NFFL	National Forest Fire Laboratory
NFP	National Fire Plan
NFPORS	National Fire Plan Operations and Reporting System
NHPA	National Historic Preservation Act
NMI	North Manitou Island
NPS	National Park Service
NWCG	National Wildfire Coordinating Group
NWS	National Weather Service
PFC	Park Fire Coordinator
P.L.	Public Law
RM	Resource Management

RMP	Resources Management Plan
SC	Staffing Class
SHPO	State Historic Preservation Officer
SLBE	Sleeping Bear Dunes National Lakeshore
SMI	South Manitou Island
T&E	Threatened and Endangered Species
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
VFD	Volunteer Fire Department
WFIP	Wildland Fire Implementation Plan
WFMI	Wild Fire Management Information
WFSA	Wildland Fire Situation Analysis
WIMS	Weather Information Management System
WUI	Wildland Urban Interface
WUII	Wildland Urban Interface Initiative

APPENDIX B

B. DEFINITIONS

A consistent list of terms and their definitions has been developed and approved by the NWCG. This list of defined terms includes terms obsolete under the new policy. Additional terms used in this reference guide but not defined by NWCG are from the Fire Effects Information System and other sources. The sources may be found in the References Cited (Appendix A).

Appropriate Management Response – the response to a wildland fire is based on an evaluation of risks to firefighter and public safety, the circumstances under which the fire occurs, including weather and fuel conditions, natural and cultural resource management objectives, protection priorities, and values to the protected. The evaluation must also include an analysis of the context of the specific fire within the overall local, geographic area, or national wildland fire situation.

Daily revalidation – A process named the periodic fire assessment, which evaluates the continued capability of the local unit to manage the fire for resource benefits, and to determine if the fire is escalating in complexity and operational needs. This process is completed as frequently as specified by the local unit.

Decision criteria checklist (Initial Go/No-Go Decision) – A set of standard evaluation criteria to determine if the current wildland fire meets criteria to be managed for resource benefits. The completion of these criteria will lead to a decision to “Go/No-Go” with management of the fire for resource benefits.

Disturbance – any relatively discrete event, either natural or human induced, that causes a change in the existing condition of an ecological system.

Confine - the strategy employed in appropriate management responses where a fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuel, and weather factors.

Ecological process – the actions or events that link organisms and their environment, such as predation, mutualism, successional development, nutrient cycling, carbon sequestration, primary productivity, and decay.

Escaped fire – a fire which has exceeded or is expected to exceed initial attack capabilities or prescription.

Fire complexity analysis – A process for assessing wildland fire organizational needs and relative complexity in terms of ICS types (I, II, III etc.).

Fire exclusion – the disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

Fire Management Unit - any land management area definable by objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regimes, etc., that sets it apart from management characteristics of an adjacent unit. FMUs are delineated in Fire Management Plans (FMP). These units may have dominant management objectives and pre-selected strategies assigned to accomplish these objectives.

Fire monitoring - the act of observing a fire to obtain information about its environment, behavior, and effects for the purpose of evaluating the fire and its prescription.

Fire prescription - a written statement defining the measurable objectives to be attained, and the conditions of temperature, humidity, wind direction and speed, and fuel moisture, under which a fire will be allowed to burn. Generally expressed as an acceptable range of the various indices, and the limit of the geographic area to be covered. Prescriptive criteria may also include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Fire regime – the fire pattern across the landscape, characterized by occurrence interval and relative intensity. Fire regimes result from a unique combination of climate and vegetation. Fire regimes exist on a continuum from short-interval, low-intensity (stand maintenance) fires to long interval, high-intensity (stand replacement) fires.

Fire return interval – the number of years between two successive fires occurring in a designated area.

Fire use – the combination of wildland fire use and prescribed fire application to meet resource objectives.

Hazard fuels – excessive live and/or dead wildland fuel accumulations (either natural or created) having the potential for the occurrence of uncharacteristically intense wildland fires.

Holding actions - planned actions required to achieve wildland and prescribed fire management objectives. These actions have specific implementation timeframes for fire use actions but can have less sensitive implementation demands for suppression actions. For wildland fires managed for resource benefits, an MMA may not be totally naturally defensible. Specific holding actions are developed to preclude fire from exceeding the MMA. For prescribed fires, these actions are developed to restrict the fire inside the planned prescribed fire unit. For suppression actions, holding actions may be implemented to prohibit the fire from crossing containment boundaries. These actions may be implemented as firelines are established to limit the spread of fire.

Initial attack – an aggressive suppression action consistent with fire fighter and public safety, and with values to be protected.

Maximum Manageable Area (MMA) - MMA defines the firm limits of management capability to accommodate the social, political, and resource impacts of a wildland fire. Once established as part of an approved plan, the general impact area is fixed and not subject to change. MMAs can be developed as part of the FMP and described as a Fire management area or FMA. They can also be developed as part of the planning and implementation of management actions after a fire has ignited. If they are developed after the ignition, their definition will occur during the Wildland Fire Implementation Plan Stage III process. In the event a fire occurs in a pre-planned MMA or FMA and the local unit determines that this MMA is not the best-suited alternative for the present conditions, a new MMA can be developed as part of the Stage III process. Once this occurs, the Stage III MMA becomes the firm limits of the fire and is fixed.

Minimum Impact Suppression Tactics (MIST) - The application of strategy and tactics that effectively meet suppression and resource objectives with the least environmental, cultural and social impacts.

Mitigation actions - Mitigation actions are considered to be those on-the-ground activities that will serve to increase the defensibility of the MMA; check, direct, or delay the spread of fire; and minimize threats to life, property, and resources. Mitigation actions may include mechanical and physical non-fire tasks, specific fire applications, and limited suppression actions. These actions will be used to construct firelines, reduce excessive fuel concentrations, reduce vertical fuel continuity, create fuel breaks or barriers around critical or sensitive sites or resources, create "blacklines" through controlled burnouts, and to limit fire spread and behavior.

Normal fire year – The normal fire year for suppressed wildland fires is the year with the third highest number of wildland fires in the past ten years of record. The normal wildland fire managed for resource benefits year is the year with the third highest number of acres burned by wildland fire use in the past ten years of record.

Preparedness - Activities that lead to a safe, efficient and cost effective fire management program in support of land and resource management objectives through appropriate planning and coordination. This term replaces presuppression.

Natural ignition – a wildland fire ignited by a natural event such as lightning or volcanoes.

Prescribed fire – any fire ignited by management actions to meet specific objectives. Prescribed fires are conducted in accordance with prescribed fire plans.

Prescribed fire plan – a plan required for each prescribed fire. Plans are documents prepared by qualified personnel, approved by the agency administrator, and include criteria for the conditions under which the fire will be conducted (a fire prescription).

Wildland fire – any non structure fire that occurs on wildland.

Wildland Fire Implementation Plan (WFIP) – a progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire being managed for resource benefits.

Wildland Fire Transition Plan – Part of the prescribed fire plan identifying actions and notifications needed when a prescribed fire exceeds project boundaries and cannot be controlled within one burning period using on-site holding resources.

Wildland Fire Use – the management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in fire management plans.

Wildland fire management - all activities related to the prevention, control or use of fire burning through vegetation under specific prescriptions for the purpose of achieving fire management objectives.

Wildland fire situation analysis (WFSA) – a decision making process that evaluates alternative management strategies against selected safety, environmental, social, political, and economic criteria.

APPENDIX C

C. SPECIES LISTS

Species lists are available from the Inventory and Monitoring (I&M) Program (NPSpecies). Public on-line application is under development at <http://science.nature.nps.gov/im/apps/npspp>) or from resource management records at the Lakeshore. Categories currently certified by the I&M program, or soon to be, include: birds, mammals, reptiles, amphibians, vascular plants and fish. Species will be noted as whether they are native or non-native. Non-vascular plants and invertebrates are currently being added to the NPSpecies list.

The following table contains the federal and state lists of T&E species found in Benzie and Leelanau counties. Also included are state species of special concern.

Table 9 – T&E Species List

Common Name	Scientific Name	Federal Status	State Status
Birds			
Bald Eagle	<i>Haliaeetus leucocephalus</i>	LT, PDL	T
Common Loon	<i>Gavia immer</i>		T
Migrant Loggerhead Shrike	<i>Lanius ludovicianus migrans</i>		E
Northern Goshawk	<i>Accipiter gentilis</i>		SC
Northern Harrier	<i>Circus cyaneus</i>		SC
Osprey	<i>Pandion haliaetus</i>		T
Peregrine Falcon	<i>Falco peregrinus</i>	PS:LE	E
Piping Plover	<i>Charadrius melodus</i>	LE	E
Prairie Warbler	<i>Dendroica discolor</i>		E
Red-shouldered Hawk	<i>Buteo lineatus</i>		T
Fish			
Pugnose Shiner	<i>Notropis anogenus</i>		SC
Insects			
Deepwater Pondsnail	<i>Stagnicola contracta</i>		T
Douglas Stenelmis Riffle Beetle	<i>Stenelmis douglasensis</i>		SC
Lake Huron Locust	<i>Trimerotropis huroniana</i>		T
Spittlebug	<i>Philaenarcys killa</i>		SC
Mammals			
Woodland Vole	<i>Microtus pinetorum</i>		SC
Plants			
Beauty Sedge	<i>Carex concinna</i>		SC
Broad-leaved Sedge	<i>Carex platyphylla</i>		T
Calypso or Fairy-slipper	<i>Calypso bulbosa</i>		T
Climbing Fumitory	<i>Adlumia fungosa</i>		SC
Cut-leaved Water-parsnip	<i>Berula erecta</i>		T
Fascicled Broom-rape	<i>Orobanche fasciculata</i>		T
Fir Clubmoss	<i>Huperzia selago</i>		SC
Furrowed Flax	<i>Linum sulcatum</i>		SC
Ginseng	<i>Panax quinquefolius</i>		T

Common Name	Scientific Name	Federal Status	State Status
Green Spleenwort	<i>Asplenium trichomanes-ramosum</i>		T
Lake Huron Tansy	<i>Tanacetum huronense</i>		T
Michigan Monkey-flower	<i>Mimulus glabratus</i> var. <i>michiganensis</i>	LE	E
Pine-drops	<i>Pterospora andromedea</i>		T
Pitcher's Thistle	<i>Cirsium pitcheri</i>	LT	T
Prairie Moonwort	<i>Botrychium campestre</i>		T
Pumpelly's Brome Grass	<i>Bromus pumpellianus</i>		T
Ram's Head Lady's-slipper	<i>Cypripedium arietinum</i>		SC
Showy Orchis	<i>Galearis spectabilis</i>		T
Three-birds Orchid	<i>Triphora trianthophora</i>		T
Walking Fern	<i>Asplenium rhizophyllum</i>		T
Reptiles			
Blanchard's Cricket Frog	<i>Acris crepitans blanchardi</i>		SC
Eastern Box Turtle	<i>Terrapene carolina carolina</i>		SC
Wood Turtle	<i>Glyptemys insculpta</i>		SC

Legend

Federal Status	State Status
LE = listed endangered	E = endangered
LT = listed threatened	T = threatened
PDL= proposed delist	
PS = partial status (listed in only part of its range)	SC = special concern

D. NEPA AND NHPA COMPLIANCE

An environmental assessment has been completed for this Fire Management Plan and is considered an unattached appendix. The finding of No Significant Impact (FONSI) is attached here. The final letters of review from the State Historic Preservation Officer Concurrence and Section 7 Consultation with the U.S. Fish and Wildlife Service are also attached here.

E. ANNUAL REVISION DOCUMENTS

1. Fire Call-up List

SLEEPING BEAR DUNES NATIONAL LAKESHORE
FIREFIGHTERS – SUMMER 2005

NAME	WORK PHONE (231 area code)	QUALIFICATIONS
Ashcraft, Paige	334-3756, x 443	FFT2
Bigley, Soctt	326-5834	FFT2
Bragg, Lee	334-7685	FFT2
Brushaber, Amanda	334-7685	FFT2
Carlile, Jake	325-5881, x 470	FFT2
Carter, Mindy	326-5834	FFT2, FALA, FFT1-TR
Chalup, Matt	326-5881	FFT2
Chalup, Paul	326-5881	FFT2
Coffee, Betsy	326-5134, x 205	FFT2, IOF3, IOF2-TR, PTRC,EDRC
Crouch, Doranda	326-5834	FFT1, FALA
DeGue, Rachel	334-3756, x 481	FFT2
Gallagher, Ryan	509-2015	FFT2
Holmgren, Dale	326-5834, x 521	FFT2, FALB, FFT1-TR
Johnson, Chris	334-3756, x 440	FFT2
Johnson, Dianne	334-3756, x 443	FFT2, EMTB
Kelly, Kevin	326-5134	FFT1, EMTB, MEDL-TR, RADO-TR
LaValley, Andria	326-5834	FFT2, FFT1-TR
Maile, Seth	325-5881 x 0	FFT2
Morgan, Todd	326-5135, x 502	CRWB, ENGB-TR, FALB, FOBS-TR, HECM, HESM, HETM, ICT4-TR
Murphy, Paul	334-7685	FFT2
Newhouse, Randy	326-5834	FFT2
Roy, Shane	326-5834	FFT2, FFT1-TR, FALB
Schad, Patrick	334-3756, x 442	FFT2, EMTB
Scott, Josh	326-334-7685	FFT2
Ulberg, Daryl	326-5834, x 543	FFT2, FFT1-TR
Van Zoeren, Tom	334-3756, x 441	FFT2, FALA, EMTB
Winter, LeRoy	334-6144	FFT2, FFT1-TR
Yancho, Steve	326-5134, x 421	FFT2

2. Preparedness Inventory

Under development by Indiana Dunes

3. Cooperative Agreements

Attached

4. Contact List

Sleeping Bear Dunes National Lakeshore.....	231-326-5134
Dusty Shultz, Superintendent.....	ext. 101
Tom Ulrich, Assistant Superintendent.....	ext. 112
Mike Duwe, Management Assistant.....	ext. 113
Steve Yancho, Park Fire Facilitator.....	ext. 421
Larry Johnson, Chief Ranger.....	ext. 400
Lisa Myers, Chief of Interpretation, Public Information Officer.....	ext. 300
Dan Krieber, Administrative Officer.....	ext. 200
Lee Jameson, Chief of Maintenance.....	ext. 500
Tom Davison, Dispatcher.....	ext. 700
Chris Johnson, Leelanau District Ranger (Including Islands)	231-334-3756
Kym Mukavetz, Platte River District Ranger.....	231-325-5562
 Indiana Dunes National Lakeshore	
Louis Hartjes, Area Fire Management Officer, Indiana Dunes N.L.....	219-926-7561 x 333
 National Park Service, Midwest Regional Office, Omaha, Nebraska	
Doug Alexander, NPS Midwest Region Fire Management Officer.....	402-661-1754
Jim Mattingly, Wildland Fire Management Specialist.....	402-661-1762
 Huron-Manistee National Forest	
Baldwin Office (Paul Forrest – Dispatcher)	231-745-4882
Mio Office (Bert Starr – Dispatcher)	989-826-3845
 Michigan Department of Natural Resources	
Platte River Fish Hatchery (Rod Rader – Fire Officer).....	231-325-4611
Traverse City Field Office (Paul Simmer – Fire Officer).....	231-922-5280
 Local Fire Departments	
Benzonia Township Fire Department (John Hanmer, Chief).....	231-882-4411
City of Frankfort (Eric Luxford, Chief).....	231-352-7117
Empire Fire Department (Ryan Deering, Chief).....	231-326-5250
Glen Arbor Fire Department (John DePuy, Chief).....	231-334-3279
Homestead Fire Department (Frank Walterhouse, Chief).....	231-325-4011
Leland Fire Department (J.P. Van Raalte, Chief).....	231-256-9545
Solon Centerville Volunteer Fire Department (Al Rosinski, Chief).....	231-228-5396

5. Sample Limited Delegation of Authority

LIMITED DELEGATION OF AUTHORITY

To: _____, Incident Commander

From: Superintendent, Sleeping Bear Dunes National Lakeshore

Subject: Limited Delegation of Authority

As of __1130__ hours, on this date June 15, 2005, I have delegated limited authority to manage the Village fire within Sleeping Bear Dunes National Lakeshore.

As Superintendent I have ultimate responsibility for protection of the Sleeping Bear Dunes National Lakeshore's resources and the lives of the visitors and employees. Your expertise in the area of wildland fire incident management will assist me in fulfilling that responsibility during the present situation. My considerations for management of this fire are:

1. Provide for firefighter, visitor, resident and neighbor safety.
2. I would like the fire managed using the most appropriate strategy that foremost considers, safety, economic cost, and probability of success and consequences of failure. The selected strategy should be implemented using minimum impact management tactics.
3. Key cultural features requiring priority protection are:
_____ the North Manitou Island Village area, campground, private inholding, historic buildings and radio tower.
4. Key resource considerations are:
___ protecting dune areas particularly on the west side of the island and the eagle nest
5. Restrictions for suppression actions are:
no tracked or wheeled vehicles outside of the Village area and no retardant will be utilized except when human life is at immediate risk. Helicopters, powersaws, portable pumps, and leaf blowers may be used as required. Chemical retardant is authorized as stipulated in the Fire Management Plan.
6. My agency Advisor/Representative will be: Steve Yancho, Park Fire Coordinator
7. Manage the fire cost effectively for the values at risk.
8. Provide training opportunities for park and local firefighters to the extent possible.

9. Minimize disruption of visitor access to park consistent with public safety.

____ (signed) _____
Superintendent, Sleeping Bear Dunes National Lakeshore

____ June 15, 2005 _____
Date

F. WILDLAND AND PRESCRIBED FIRE MONITORING PLAN

The monitoring plan is under development and will become an unattached appendix to the Fire Management Plan when completed.

G. PRE-ATTACK PLAN

Table 10 – Pre-Attack Plan

Function/Item	Available	Needed	Not Needed
Command			
Pre-attack WFSA			X
Pre-positioning Needs			X
Draft Delegation of Authority	X		
Management Constraints	X		
Interagency Agreements	X		
Evacuation Procedures		X	
Structural Protection Needs	X		
Closure Procedures			X
Operations			
Water Sources	X		
Control Line Locations		X	
Natural Barriers	X		
Safety Zones		X	
Flight Routes/Restrictions			X
Staging Area Locations	X		
Helispot/Helibase Locations		X	
Logistics			
ICP Location		X	
Roads/Trails with Limitations	X		
Utilities	X		
Medical Facilities	X		
Stores/Restaurants/Services	X		
Rental Equipment Sources	X		
Construction Contractors	X		
Sanitary Facilities	X		
Law Enforcement/Fire Departments	X		
Communications (availability)		X	
Maintenance Facilities	X		
Sanitary Landfills	X		
Planning			
Park Base Map	X		
Area Topographic Maps	X		
Infrared Imagery			X
Vegetation/Fuel Maps	X		
Hazard Maps (ground and aerial)		X	
Special Visitor Use Areas	X		
Land Ownership Status	X		
Archeological/Cultural Resource Maps	X		
Sensitive Plant Area Maps	X		

H. STEP-UP PLAN

Table 11 – Step-up Plan

Staffing Class	Fuel Model	Burning Index	Step up Actions
SC-1	E* R	1-7 1-4	Normal tours of duty are scheduled. Get away standard (notification to departure time): 15 minutes.
SC-2	E R	8-15 5-7	Same as SC-1 except – Get away standard: 10 minutes
SC-3	E R	16-30 8-15	The BI and Staffing Class will be announced daily by Lakeshore dispatcher. Normal tours of duty are scheduled. All Lakeshore firefighters will have their required initial attack personal protective equipment readily available. Get away standard: 5 minutes. During periods of high visitation (holidays, weekends, hunting seasons) consider moving to Staffing Class 4.
SC-4	E R	31-37 16-18	Actions in SC-3 plus The Lakeshore PFC will contact the area FMO at Indiana Dunes. If deemed necessary, extend coverage of initial attack personnel to 12 hour work days, using emergency preparedness funds for overtime incurred. Increase patrol coverage for early detection of wildland fires. Visitor Center personnel and all field rangers will caution visitors of hazardous fire conditions. Interpretive programs will include a brief, appropriate, fire prevention message. Fire prevention efforts and messages will be coordinated with local DNR offices so the public will receive consistent information. Get away standard: 5 minutes. During periods of high visitation (holidays, weekends, hunting seasons) consider moving to Staffing Class 5.
SC-5	E R	38+ 19+	Actions in SC-4 plus Pre-position qualified personnel with equipment for rapid response Open fires may be prohibited. Get away standard: 2 minutes. Trailheads will be posted with fire danger warning signs.

*E = Before green-up, R = After green-up

Table 12 – Recommended Staffing Levels for Step up Plan

Staffing Class	Minimum Staffing	Optimum Staffing
SC-1	2 people qualified at FFT2	2 people qualified at FFT2
SC-2	3 people qualified at FFT2	1 person qualified as ICT5 2 people qualified at FFT2/ENOP
SC-3	1 person qualified as FFT1 2 people qualified at FFT2	1 person qualified as ENGB 1 person qualified as ICT5 2 people qualified at FFT2/ENOP
SC-4	1 person qualified as FFT1 3 people qualified at FFT2	1 person qualified as ENGB 1 person qualified as ICT5 2 people qualified as FFT1 2 people qualified at FFT2/ENOP
SC-5	1 person qualified as FFT1 4 people qualified at FFT2	2 people qualified as ENGB+ICT4 2 people qualified as ICT5 2 people qualified as FFT1/ENOP 4 people qualified as FFT2

I. FIRE READINESS REVIEW CHECKLIST

Fire Readiness Review Checklist

Location: Sleeping Bear Dunes National
Lakeshore

Date:

Key Code: E = Exceeds Standard M = Meets Standard NI = Needs Improvement NR = Not Reviewed			
Description		Code	Remarks
1.	Ensure documentation for fire agreements are in order		
2.	Review Interagency Standards for Fire and Aviation Operations 2003 (Redbook), Chapter 13		
3.	Review Interagency Preparedness Guide on the BLM webpage: http://www.fire.blm.gov/Standards/prepcont.htm		
4.	Test and repair water delivery equipment		
5.	Ensure engine records are completed (may include weight slips and maintenance records). Use BLM webpage for the engine checklist.		
6.	Make sure SLBE fire weather station is operational by April 1		
7.	Annual firefighter refresher training is complete.		
8.	Fire shelter training and practice drills are complete.		
9.	Fire staff are trained in the use of all PPE.		
10.	Pack test Job Hazard Analysis (JHA) is reviewed.		
11.	Pack test is conducted for all required positions.		
12.	Qualifications (Red Card) Card is current, including results of the appropriate work capacity test.		
13.	Ensure qualifications and training are up to date for all fire qualified staff and entered in the Wildland Fire Management Information System (WFMI).		

Key Code: E = Exceeds Standard M = Meets Standard NI = Needs Improvement NR = Not Reviewed			
	Description	Code	Remarks
14.	Personal fire equipment is issued and available: a. Personal protective equipment is issued and serviceable. b. Personal fire gear bag and line gear are ready. c. All equipment meets weight standard. d. Fire shelter is inspected and meets standards.		
15.	Defensive Driving training is complete if required.		
16.	Firefighters are familiar with units' fitness program.		
17.	Personal safety materials are available: a) Incident Response Pocket Guide. b) LCES stickers. c) 10 Standard Firefighting Orders. d) 18 Watch Out Situations. e) Common Denominators. f) Downhill Line Construction.		
18.	Task books are properly initiated, reviewed and documented.		
19.	Ensure engine and all fire cache inventories are completed at end of fire season.		

J. LONG-TERM PRESCRIBED FIRE AND HAZARD REDUCTION PLAN

1. Multi-Year Prescribed Fire Schedule

To be developed.

2. Hazard Fuel Reduction Areas

Table 13 – Non-Fire Project Schedule

(including proposed treatment techniques.)

Project Name	Acres	Type of Project
Trailhead	3	Mechanical
Church	3.6	Mechanical
Homestead	9	Mechanical
Day Street	2	Mechanical
Forest Haven	0.7	Mechanical
Phone Co.	6	Mechanical

The Lakeshore proposes a number of Wildland Urban Interface Initiative (WUII) projects in Unit II under this alternative that would reduce fire hazards in the vicinity of developed areas on the mainland in the vicinity of the community of Glen Arbor, including the following:

- Trailhead: This project is located near the Dunes Trailhead and former Coast Guard Station in Glen Haven. This proposed treatment (and two possible alternates) would reduce fuel loading and fire intensity on approximately three acres of primarily jack pine in the vicinity of the Dunes Trailhead and road by thinning brush and limbing trees on both sides. The fuel break would be 15-20 feet wide, with trees cut flush to the ground. Work would be completed by hand crews, and the boundary maintained indefinitely as a fuel break.
- Church: This project is located near the town of Glen Arbor near Forest Haven Road, and then proceeding West, adjacent to highway M-109. This project (or a possible alternative) is intended to reduce the risk of fire spreading from the Lakeshore to adjacent, non-federal land by creating a fire break and providing a defensible area to fight fire. In a 15-20 ft. wide shaded fuel break covering approximately 3.6 acres, trees and shrubs less than five inches in diameter would be cut flush to the ground and bigger trees would be limbed. The fuel break would be maintained as such indefinitely. The fuel type is primarily pines and mixed hardwoods.
- Homestead: This project is located adjacent to The Homestead. This proposed project (or one of two alternatives) is approximately nine acres in size and located along the Lakeshore boundary. This area would be selectively thinned to reduce fuel loading and fire intensity, as well as provide better access for fire fighting along the park boundary and The Homestead. The treatment area would start at boundary marker B-213, adjacent

to The Homestead maintenance shop, and follow the park boundary to B-228. The project would construct a 15-20 foot shaded fuel break. Trees and shrubs less than five inches in diameter at breast height would be cut flush to ground and dispersed East of treatment area. Larger trees may be limbed if necessary. Leaf blowing would follow to clear the break. There would be no stump grinding or ground disturbance. Work would be completed by hand crews, and the boundary maintained indefinitely as a fuel break. Fuels are pine plantations and hardwoods.

- Day Street: This project is located adjacent to D.H. Day Street and the D.H. Day Campground, off highway M-109. The proposed treatment area (or a possible alternative) would thin brush and limb trees on approximately two acres following D.H. Day Street from M109 North until it ends, and from the terminus of D.H. Day Street along the established footpath to Lake Michigan. Hand crews would conduct the work, which would necessitate no stump grinding or ground disturbance; the cleared zone would be maintained indefinitely as a 15-20 foot wide fuel break. The fuel type is mixed hardwoods and costal forest containing jack pines.
- Forest Haven (Alternate): This project is located near the town of Glen Arbor, between M-22 and Forest Haven Road. The proposed treatment area would encompass approximately 0.7 acre. It would follow the park boundary from M-22 to the boundary marker A-22, following an old road, and from boundary markers A-22 to A-20. A shaded, 15-20 ft. wide fuel break would be put in and maintained indefinitely. Work would be completed by hand crews. The old road would be minimally thinned, and large fuels removed. Trees and shrubs less than five inches in diameter at breast height would be cut flush to ground and dispersed. Some bigger trees would be limbed. There would be no stump grinding or ground disturbance. The fuels are primarily mixed hardwoods and pines.
- Phone Company: This project is located along the park boundary, adjacent to highway M-22, between Little Glen Lake and the Century Telephone property to the North. A fuel break would be established on approximately six acres (or a possible alternative) following the park boundary from markers A-44 to A-57, along an old road from boundary markers A-57 to A-63 and from boundary markers A-63 to A-72. The fuel break would be maintained indefinitely. Trees and shrubs less than five inches in diameter at breast height would be cut flush to ground and dispersed and large fuels removed. Some bigger trees would be limbed. There would be no stump grinding or ground disturbance. Leaf blowing would follow to clear the break. The fuels are primarily mixed hardwoods.

K. FIRE PREVENTION PLAN

There is no Prevention Plan in place currently. This document will be added when it is developed.

L. RENTAL EQUIPMENT AGREEMENTS

These agreements will be added when they are developed.

**M. CONTRACTS FOR SUPPRESSION AND PRESCRIBED FIRE
RESOURCES**

These agreements will be added when they are developed.

N. WILDLAND FIRE IMPLEMENTATION PLAN

WILDLAND FIRE IMPLEMENTATION PLAN

STAGE 1

Fire Name					
Fire Number					
Jurisdiction(s)					
Administrative Unit(s)					
FMP Unit(s)					
Geographic Area					
Management Code					
Start Date/Time					
Discovery Date/Time					
Current Date/Time					
Current Size					
Location:	Legal Description(s)	T.	R.	Sec.	Sub.
	Latitude				
	Longitude				
	UTM:				
	County:				
	Local Description				
Cause					
Fuel Model/Conditions					
Current Weather					
Predicted Weather					

Availability of Resources	
---------------------------	--

O. WILDLAND FIRE SITUATION ANALYSIS FORM

Wildland Fire Situation Analysis (WFSA)

Section I, WFSA Information Page (*This page is completed by the Agency Administrator(s).*)

A. Jurisdiction(s): *Assign the agency or agencies that have or could have fire protection responsibility, e.g., USFWS, BLM, etc.*

B. Geographic Area: *Assign the recognized "Geographic Coordination Area" the fire is located in, e.g., Northwest, Northern Rockies, etc.*

C. Unit(s): *Designate the local administrative unit(s), e.g., Hart Mountain Refuge Area, Flathead Indian Reservation, etc.*

D. WFSA #: *Identify the number assigned to the most recent WFSA for this fire.*

E. Fire Name: *Self-explanatory.*

F. Incident #: *Identify the incident number assigned to the fire.*

G. Accounting Code: *Insert the local unit's accounting code.*

H. Date/Time Prepared: *Self-explanatory.*

I. Attachments: *Check here to designate items used to complete the WFSA. "Other" could include data or models used in the development of the WFSA. Briefly describe the "other" items used.*

I. Wildland Fire Situation Analysis	
<i>To be completed by the Agency Administrator(s)</i>	
A. Jurisdiction(s)	B. Geographic Area
C. Unit(s)	D. WFSA #
E. Fire Name	F. Incident #
G. Accounting Code:	
H. Date/Time Prepared _____ @ _____	
I. Attachments	
<ul style="list-style-type: none"> - Complexity Matrix/Analysis * - Risk Assessment/Analysis * <ul style="list-style-type: none"> Probability of Success * Consequences of Failure * - Maps * - Decision Tree ** - Fire Behavior Projections * - Calculations of Resource Requirements * - Other (specify) <p>*Required</p> <p>**Required by FWS</p>	

Section II. Objectives and Constraints *(This page is completed by the Agency Administrator(s)).*

A. Objectives: Specify objectives that must be considered in the development of alternatives. Safety objectives for firefighter, aviation, and public must receive the highest priority. Suppression objectives must relate to resource management objectives in the unit resource management plan.

Economic objectives could include closure of all or portions of an area, thus impacting the public, or impacts to transportation, communication, and resource values.

Environmental objectives could include management objectives for airshed, water quality, wildlife, etc.

Social objectives could include any local attitudes toward fire or smoke that might affect decisions on the fire.

Other objectives might include legal or administrative constraints, which would have to be considered in the analysis of the fire situation, such as the need to keep the fire off other agency lands, etc.

B. Constraints: List constraints on wildland fire action. These could include constraints to designated wilderness, wilderness study areas, environmentally or culturally sensitive areas, irreparable damage to resources or smoke management/air quality concerns. Economic constraints, such as public and agency cost, could be considered here.

II. Objectives and Constraints
<i>To be Completed by the Agency Administrator(s)</i>
A. Objectives (Must be specific and measurable) 1. Safety - Public - Firefighter 2. Economic 3. Environmental 4. Social 5. Other B. Constraints

Section III. Alternatives (*This page is completed by the Fire Manager and/or Incident Commander.*)

A. Wildland Fire Management Strategy: Briefly describe the general wildland fire strategies for each alternative. Alternatives must meet resource management plan objectives.

B. Narrative: Briefly describe each alternative with geographic names, locations, etc., that would be used when implementing a wildland fire strategy. For example: "Contain within the Starvation Meadows' watershed by the first burning period."

C. Resources Needed: Resources described must be reasonable to accomplish the tasks described in Section III.B. It is critical to also look at the reality of the availability of these needed resources.

D. Final Fire Size: Estimated final fire size for each alternative at time of containment.

E. Estimated Contain/Control Date: Estimates of each alternative shall be made based on predicted weather, fire behavior, resource availability, and the effects of suppression efforts.

F. Cost: Estimate all incident costs for each alternative. Consider mop-up, rehabilitation, and other costs as necessary.

G. Risk Assessment: Probability of Success/Consequences of Failure: Describe probability as a percentage and list associated consequences for success and failure. Develop this information from models, practical experience, or other acceptable means. Consequences described will include fire size, days to contain, days to control, costs, and other information such as park closures and effect on critical habitat. Include fire behavior and long-term fire weather forecasts to derive this information.

H. Complexity: Assign the complexity rating calculated in "Fire Complexity Analysis" for each alternative, e.g., Type II, Type I.

I. Map: A map for each alternative should be prepared. The map will be based on the "Probability of Success/Consequences of Failure" and include other relative information.

III. Alternatives <i>(To be completed by FMO / IC)</i>			
	A	B	C
A. Wildland Fire Strategy			
B. Narrative			
C. Resources Needed			
Handcrews			
Engines			
Dozers			
Airtankers			
Helicopters			
Other			
D. Final Size			
E. Est. Contain/ Control Date			
F. Costs			
G. Risk Assessment			
- Probability of Success			
- Consequence Of failure			
H. Complexity			
I. Attach maps for each alternative			

Section IV. Evaluation of Alternatives *(This page is completed by the Agency Administrator(s), FMO and/or Incident Commander.)*

A. Evaluation Process: Conduct an analysis for each element of each objective and each alternative. Objectives shall match those identified in Section II.A. (Those listed are defaults only – not all will be applicable to every fire – add or delete as appropriate for each incident.) Use the best estimates available and quantify whenever possible. Provide ratings for each alternative and corresponding objective element. Fire effects may be negative, cause no change, or may be positive. Examples are: 1) a system which employs a "-" for negative effect, a "0" for no change, and a "+" for positive effect; 2) a system which uses a numeric factor for importance of the consideration (soils, watershed, political, etc.) and assigns values (such as -1 to +1, - 100 to +100, etc.) to each consideration, then arrives at a weighted average. If you have the ability to estimate dollar amounts for natural resource and cultural values, this data is preferred. Use those methods which are most useful to managers and most appropriate for the situation and agency. To be able to evaluate positive fire effects, the area must be included in the resource management plan and consistent with prescriptions and objectives of the fire management plan.

Sum of Economic Values: Calculate for each element the net effect of the rating system used for each alternative. This could include the balance of: Pluses (+) and minuses (-), numerical rating (-3 and +3), or natural and cultural resource values in dollar amounts. (Again, resource benefits may be used as part of the analysis process when the wildland fire is within a prescription consistent with approved Fire Management Plans and in support of the unit's Resource Management Plan.)

IV. Evaluation of Alternatives			
<i>To be Completed by the Agency Administrator(s) and Fire Manager / Incident Commander</i>			
A. Evaluation Process	A	B	C
<i>Safety</i>			
Firefighter			
Aviation			
Public			
<i>Sum of Safety Values</i>			
<i>Economic</i>			
Forage			
Improvements			
Recreation			
Timber			
Water			
Wilderness			
Wildlife			

Other (specify)			
<i>Sum of Economic Values</i>			
<i>Environmental</i>			
Air			
Visual			
Fuels			
T & E Species			
Other (specify)			
<i>Sum of Environmental Values</i>			
<i>Social</i>			
Employment			
Public Concern			
Cultural			
Other (Specify)			
<i>Sum of Social Values</i>			
<i>Other</i>			

Section V. Analysis Summary (*This page is completed by the Agency Administrator(s) and Fire Manager and/or Incident Commander.*)

A. Compliance with Objectives: Prepare narratives that summarize each alternative's effectiveness in meeting each objective. Alternatives that do not comply with objectives are not acceptable. Narrative could be based on effectiveness and efficiency. For example: "most effective and least efficient," "least effective and most efficient," or "effective and efficient." Or answers could be based on a two-tiered rating system such as "complies with objective" and "fully complies with or exceeds objective." Use a system that best fits the manager's needs.

B. Pertinent Data: Data for this Section has already been presented, and is duplicated here to help the Agency Administrator(s) confirm their selection of an alternative. Final Fire Size is displayed in Section III.D. Complexity is calculated in the attachments and displayed in Section III.H. Costs are displayed on page 4. Probability of Success/Consequences of Failure is calculated in the attachments and displayed in Section III.G.

C. External and Internal Influences: Assign information and data occurring at the time the WFSA is signed. Identify the Preparedness Index (1 through 5) for the National and Geographic levels. If available, indicate the Incident Priority assigned by the MAC Group. Designate the Resource Availability status. This information is available at the Geographic Coordination Center, and is needed to select a viable alternative. Designate "yes," indicating an up-to-date weather forecast has been provided to, and used by, the Agency Administrator(s) to evaluate each

alternative. Assign information to the "Other" category as needed by the Agency Administrator(s).

Section IV. Decision

Identify the alternative selected. Must have clear and concise rationale for the decision, and a signature with date and time. Agency Administrator(s) signature is mandatory.

V. Analysis Summary			
<i>To be Completed by the Agency Administrator(s) and Fire Manager / Incident Commander</i>			
Alternatives	A	B	C
A. Compliance with Objectives			
Safety			
Economic			
Environmental			
Social			
Other			
B. Pertinent Data			
Final Fire Size			
Complexity			
Suppression Cost			
Resource Values			
Probability of Success			
Consequences of Failure			
C. External / Internal Influences			
National & Geographic Preparedness Level _____ Incident Priority _____ _____ Resource Availability _____ Weather Forecast (long-range) _____ _____ Fire Behavior Projections _____ _____			

Section VII. Daily Review (This Section is completed by the Agency Administrator(s) or designate.)

The date, time, and signature of reviewing officials are reported in each column for each day of the incident. The status of Preparedness Level, Incident Priority, Resource Availability, Weather Forecast, and WFSA validity is completed for each day reviewed. Ratings for the Preparedness Level, Incident Priority, Resource Availability, Fire Behavior, and Weather Forecast are addressed in Section V.C. Assign a "yes" under "WFSA Valid" to continue use of this WFSA. A "no" indicates this WFSA is no longer valid and another WFSA must be prepared or the original revised.

Section VIII. Final Review (This Section is completed by the Agency Administrator(s). A signature, date, and time are provided once all conditions of the WFSA are met.)

VIII. Daily Review								
<i>To be completed by the Agency Administrator(s) or Designate</i>								
Selected to be reviewed daily to determine if still valid until containment or control								
			P R E P A R E D N E S S L E V E L	I N C I D E N T P R I O R I T Y	R E S O U R C E A V A I L A B I L I T Y	W E A T H E R F O R E C A S T	F I R E B E H A V I O R P R O J E C T I O N S	W F S A V A L I D
Date	Time	By						

If WFSA is no longer valid, a new WFSA will be completed!									
VIII. Objectives Final Review									
The elements of the selected alternative were met on:									
Date _____ Time _____									
By: _____ (Agency Administrator(s))									

A GUIDE FOR ASSESSING FIRE COMPLEXITY

The following questions are presented as a guide to assist the Agency Administrator(s) and staff in analyzing the complexity or predicted complexity of a wildland fire situation. Because of the time required to assemble or move an Incident Management Team to wildland fire, this checklist should be completed when a wildland fire escapes initial attack and be kept as a part of the fire records. This document is prepared concurrently with the preparation of (and attached to) a new or revised Wildland Fire Situation Analysis. It must be emphasized this analysis should, where possible, be based on predictions to allow adequate time for assembling and transporting the ordered resources.

Use of the Guide:

1. Analyze each element and check the response "yes" or "no."
2. If positive responses exceed, or are equal to, negative responses within any primary factor (A through G), the primary factor should be considered as a positive response.
3. If any three of the primary factors (A through G) are positive responses, this indicates the fire situation is, or is predicted to be, Type I.
4. Factor H should be considered after all the above steps. If more than two of these items are answered "yes," and three or more of the other primary factors are positive responses, a Type I team should be considered. If the composites of H are negative, and there are fewer than three positive responses in the primary factors (A-G), a Type II team should be considered. If the answers to all questions in H are negative, it may be advisable to allow the existing overhead to continue action on the fire.

GLOSSARY OF WFSA TERMS

Potential for blow-up conditions - Any combination of fuels, weather, and topography excessively endangering personnel.

Rate or endangered species - Threat to habitat of such species or, in the case of flora, threat to the species itself.

Smoke management - Any situation which creates a significant public response, such as smoke in a metropolitan area or visual pollution in high-use scenic areas.

Extended exposure to unusually hazardous line conditions - Extended burnout or backfire situations, rockslide, cliffs, extremely steep terrain, abnormal fuel situation such as frost killed foliage, etc.

Disputed fire management responsibility - Any wildland fire where responsibility for management is not agreed upon due to lack of agreements or different interpretations, etc.

Disputed fire policy - Differing fire policies between suppression agencies when the fire involves multiple ownership is an example.

Pre-existing controversies - These may or may not be fire management related. Any controversy drawing public attention to an area may present unusual problems to the fire overhead and local management.

Have overhead overextended themselves mentally or physically - This is a critical item that requires judgment by the responsible agency. It is difficult to write guidelines for this judgment because of the wide differences between individuals. If, however, the Agency Administrator feels the existing overhead cannot continue to function efficiently and take safe and aggressive action due to mental or physical reasons, assistance is mandatory.

FIRE COMPLEXITY ANALYSIS

A. FIRE BEHAVIOR: Observed or Predicted	Yes/No
1. Burning Index (from on-site measurement of weather conditions predicted to be above the 90% level using the major fuel model in which the fire is burning.	___ ___
2. Potential exists for "blowup" conditions (fuel moisture, winds, etc.).	___ ___
3. Crowning, profuse or long-range spotting.	___ ___
4. Weather forecast indicating no significant relief or worsening conditions.	___ ___
Total:	___ ___

B. RESOURCES COMMITTED

1. 200 or more personnel assigned.	___ ___
------------------------------------	---------

- | | | |
|---|-----|-----|
| 2. Three or more divisions. | ___ | ___ |
| 3. Wide variety of special support personnel. | ___ | ___ |
| 4. Substantial air operation which is not properly staffed. | ___ | ___ |
| 5. Majority of initial attack resources committed. | ___ | ___ |
| Total | ___ | ___ |

C. RESOURCES THREATENED

- | | | |
|---|-----|-----|
| 1. Urban interface. | ___ | ___ |
| 2. Developments and facilities. | ___ | ___ |
| 3. Restricted, threatened or endangered species habitat. | ___ | ___ |
| 4. Cultural sites. | ___ | ___ |
| 5. Unique natural resources, special designation zones or wilderness. | ___ | ___ |
| 6. Other special resources. | ___ | ___ |
| Total | ___ | ___ |

D. SAFETY

- | | | |
|---|-----|-----|
| 1. Unusually hazardous fire line conditions. | ___ | ___ |
| 2. Serious accidents or facilities. | ___ | ___ |
| 3. Threat to safety of visitors from fire and related operations. | ___ | ___ |
| 4. Restricted and/or closures in effect or being considered. | ___ | ___ |
| 5. No night operations in place for safety reasons. | ___ | ___ |
| Total | ___ | ___ |

E. OWNERSHIP

- | | | |
|--|---------------|-----|
| | Yes/No | |
| 1. Fire burning or threatening more than one jurisdiction. | ___ | ___ |
| 2. Potential for claims (damages). | ___ | ___ |
| 3. Conflicting management objectives. | ___ | ___ |
| 4. Disputes over fire management responsibility. | ___ | ___ |
| 5. Potential for unified command. | ___ | ___ |
| Total | ___ | ___ |

F. EXTERNAL INFLUENCES

- | | | |
|---|-----|-----|
| 1. Controversial wildland fire management policy. | ___ | ___ |
| 2. Pre-existing controversies/relationships. | ___ | ___ |
| 3. Sensitive media relationships. | ___ | ___ |
| 4. Smoke management problems. | ___ | ___ |
| 5. Sensitive political interests. | ___ | ___ |
| 6. Other external influences. | ___ | ___ |
| Total | ___ | ___ |

G. CHANGE IN STRATEGY

- | | | |
|--|-----|-----|
| 1. Change in strategy to control from confine or contain. | ___ | ___ |
| 2. Large amount of unburned fuel within planned perimeter. | ___ | ___ |
| 3. WFSA invalid or requires updating. | ___ | ___ |
| Total | ___ | ___ |

H. EXISTING OVERHEAD

- | | | |
|---|-----|-----|
| 1. Worked two operational periods without achieving initial objectives. | ___ | ___ |
| 2. Existing management organization ineffective. | ___ | ___ |
| 3. IMT overextended themselves mentally and/or physically. | ___ | ___ |
| 4. Incident action plans, briefings, etc., missing or poorly prepared. | ___ | ___ |
| Total | ___ | ___ |

Signature _____

Date _____ Time _____