APPENDIX A

BIBLIOGRAPHY

BIBLIOGRAPHY

Anderson, B.A. 1983. Archaeological Considerations for Park and Wilderness Fire Management Planning. Paper presented at Wilderness Fire Symposium at the University of Montana, Missoula, Montana. Unpublished. 13pp.

Anderson, H.E. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service. Ogden, Utah. 22pp.

Andrews, P.L. 1986. BEHAVE: Fire Behavior Prediction and Fuel Modeling System – BURN Subsystem, Part 1. Gen. Tech. Rep. INT-194. USDA Forest Service, Intermountain Research Station. Ogden, Utah. 130pp.

Bradshaw, L.S. and W.C. Fischer. 1984. Computer programs for summarizing climatic data stored in the National Fire Weather Data Library. USDA Forest Service, Intermountain Forest and Range Experiment Station, General Technical Report INT-164, Ogden, Utah. 39pp.

Cole, K.L. 1988. Historical impacts on communities in disequilibrium. In, Cole, et al.,

Fire Effects Information System. USDA Forest Service Rocky Mountain Research Station. Fire Sciences Laboratory. Missoula, Montana.

Gleason, P. 1991. LCES-A Key to Safety in the Wildland Fire Environment. Fire Management Notes. 52(4):9. [See also: Wildfire news & Notes. 5(2): 1.]

Henderson, N.R. 1988. The role of fire in succession in the sanddune plant communities of Lake Michigan. In, Cole, et al., Eds. Proceedings of the First Indiana Dunes Research Conference, Symposium on Plant Succession. U.S. Department of Interior, National Park Service Science Publication Office. Atlanta, Georgia.

Henderson, N.R. and J.N. Long. 1984. A comparison of stand structure and fire history in two black oak woodlands in northwestern Indiana. Bot. Gaz.145:222-228
Illinois State Museum. 2000. Prairie Ecosystems – Prairie Peninsula. Website: http:/www.museum.state.il.us/muslink/prairie/htmls.

Keetch, J.J. and Byram, J.D. 1968. A Drought Index for Forest Fire Control. Res. Pas. SE-38. USDA Forest Service, Southeastern Forest Experiment Station. Asheville, North Carolina. 32pp.

Haddow, D. 1989. Presentation at Fire In Resource Management Symposium, March 27 – April 5, 1989. Marania, Arizona. II-J:2.

Lyon, J.L., H.S. C.R. Crawford, E. Czuhai, R.L. Fredridsen, R. F. Harlow, L.J. Metz, and H.A. Pearson. 1978. Effects of Fire on Fauna – A State-of-Knowledge Review. National Fire Effects Workshop, April 10 – 14, 1978. Denver, Colorado. USDA Forest Service. 22pp.

Malkin, K. 1994. Clean Air Act. Shelton and L. Fox, eds. An Introduction to Selected Laws Important for Resource Management in the National Park Service. Natural Resources Report. NPS- NPRO - NPP-94/15. USDOI, NPS, Natural Resources Publication Office. p28-32

Means, D.B. 1981. Effects of Prescribed Burning on Amphibians and Repitiles. Prescribed Fires and Wildlife in Southern Forests. Proceedings of a Symposium G.W. Wood, editor. Belle W. Baruch Forest Science Institute of Clemson University, Georgetown, South Carolina. p 89-97.

National Park Service. 2003. Louis Brenan, Site Operator. Indiana Dunes National Lakeshore Weather Statistics. U.S. Department of the Interior, National Park Service. Indiana Dunes National Lakeshore. Website. http://www.nps.gov/indu/index/htm.

National Park Service 2002. Guidelines for ATV Operations, Indiana Dunes National lakeshore, U.S. Department of Interior, National Park Service. Indiana Dunes National Lakeshore.

National Park Service. 2001a. FIREPRO III Basis-Base Analysis Report for FY2002. U.S. Department of the Interior, National Park Service. Indiana Dunes National Lakeshore. 6pp.

National Park Service. 2001b. U.S. Department of Interior, National Park Service Midwest Region. All-Terrain Vehicle Use Policy.

National Park Service 1999a. Prescribed Fire Planning, Implementation, and Evaluation Procedures Review. Fire Management Program Center. National Park Service. Boise, Idaho. 9pp.

National Park Service. 1999b. Resource Management Plan: Indiana Dunes National Lakeshore. United States Department of the Interior. National Park Service. Porter, Indiana.

National Park Service. 1997. General Management Plan-Indiana Dunes National Lakeshore. United States Department of the Interior. National Park Service. Denver Service Center. 44pp.

National Park Service. 1992. Fire Management Plan for Indiana Dunes National Lakeshore. National Park Service. Porter, Indiana. 41 pp.

National Park Service, 1981. Report 81-01 Ecosystem Study of the Indiana Dunes National Lakeshore. United States Department of the Interior, National Park Service.

National Park Service. 1980. General Management Plan-Indiana Dunes National Lakeshore. United States Department of the Interior. National Park Service.

National Park Service 1979. The Role of the National Park Service in Protecting Clean Air. April 2, 1979 Seminar. On file at the Denver Service Center. Denver, Colorado

National Wildfire Coordination Group1999. Fireline Handbook - NWCG Handbook, National Wildfire Coordination Group, Boise, Idaho.

National Wildfire Coordination Group (NWCG) 1998. Wildland and Prescribed Fire Management Policy: Implementation and Reference Guide. National Wildfire Coordination Group, Boise, Idaho. 91 pp.

National Wildfire Coordination Group (NWCG). 1985. Prescribed Fire Smoke Management Guide, NFES No.1279. National Wildfire Coordination Group, Boise, Idaho. 28 pp.

Pavlovic, N.B. and M.L. Bowles. 1994. Ecological Rare Plant Monitoring and Research at Indiana Dunes National Lakeshore. For: Davis, G.E. and W.L. Halvorson (Eds). Efficiency of Long-Term Research in U.S. National Parks. University of Arizona Press.

Peterson, J.B, 1990. The Prairie Point Agronomy Research Center. Purdue University. West Lafayette, Indiana. Website: http:// www.agry.purdu.edu/arc/prairie.htm

APPENDIX B

GLOSSARY OF TERMS

Glossary of Terms

Appropriate Management Response: Specific actions taken in response to a wildland fire to implement protection and fire use objectives.

BI - Burning Index: A number related to the contribution that fire behavior makes to the amount or effort needed to contain a fire in a particular fuel type within a rating area. An Index for describing Fire Danger.

Catastrophic Wildfire: A large scale, high-intensity wildland fire that could result in high plant mortality, removal of the majority of ground cover over a large area, possibly damage or destroy structures and other property, and/or severely impact water and air quality.

Closed Area: An area in which specified activities or entry are temporarily restricted to provide for to public safety or to reduce risk of human-caused fires.

Closure: Legal restriction, but not necessarily elimination of specified activities such as smoking, camping, or entry that might cause fires in a given location.

Confine: Confinement is 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.

Ecosystem: An interacting system of interdependent organisms.

Fire Management Unit (FMU):

Natural Fires: Fires resulting from lightning or other forms of natural ignitions.

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.

Prescribed Fire: Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescribed Fire Plan: A plan required for each fire application ignited by managers. It must be prepared by qualified personnel and approved by the appropriate agency

APPENDIX C: NEPA COMPLIANCE

Environmental Assessment

For The

A. Fire Management Plan

Indiana Dunes National Lakeshore

APPENDIX D

NHPA COMPLIANCE

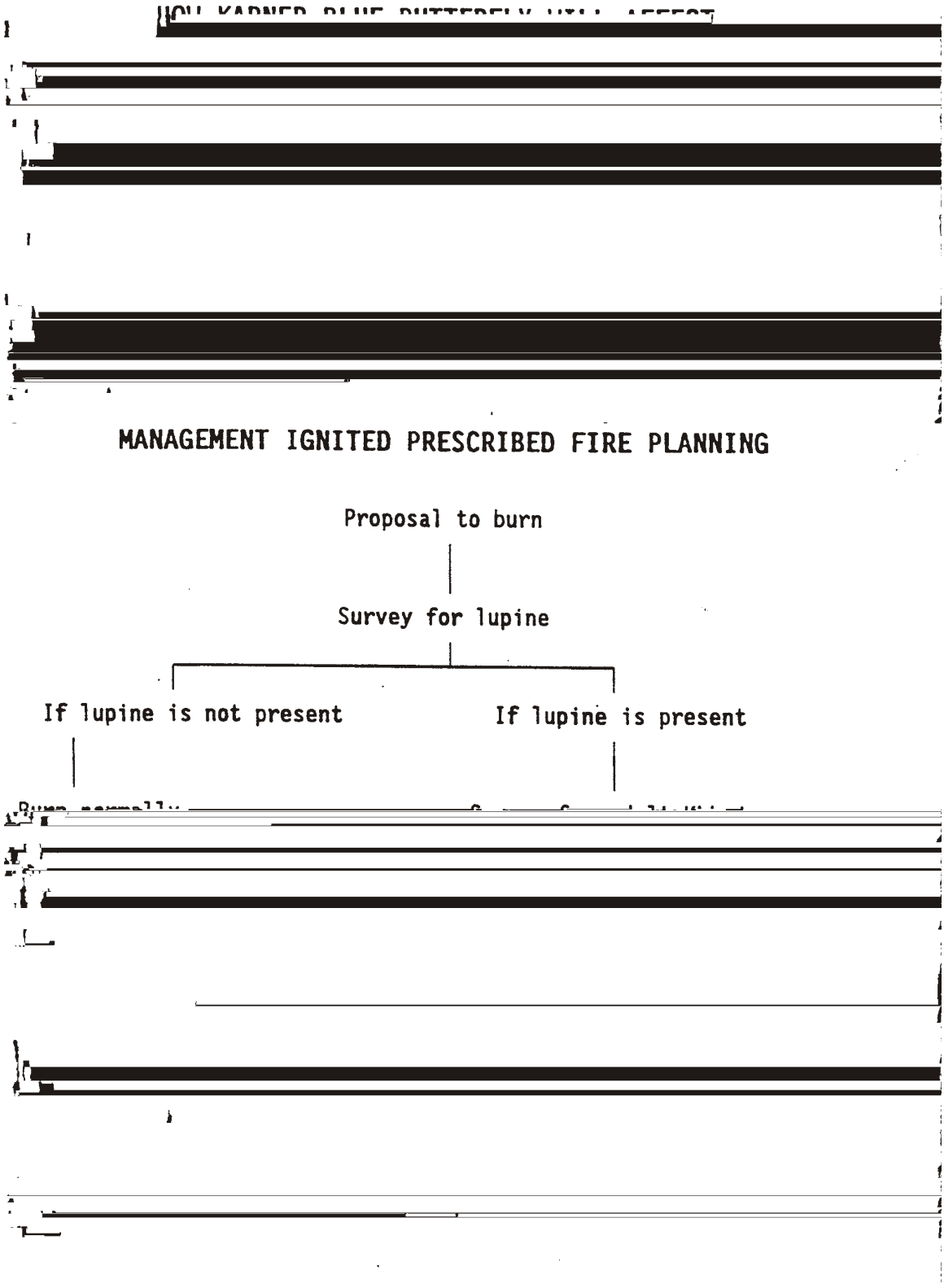
SECTION 106 DOCUMENTATION WILL BE INSERTED IN FINAL DRAFT AFTER PUBLIC REVIEW PERIOD

APPENDIX E

LISTING OF FEDERAL AND STATE LISTED THREATENED AND ENDANGERED SPECIES

AND

GUIDELINES FOR MANAGING FOR THE KARNER BLUE BUTTERFLY


MANAGEMENT IGNITED PRESCRIBED FIRE PLANNING
Proposal to burn
Survey for lupine
If lupine is not present
If lupine is present

APPENDIX F

FIRE HISTORY

INDIANA DUNES NATIONAL LAKESHORE
FIRE HISTORY (1982 -2003)

Year	Wildfires		Acres	Largest	Rx	Acres	Support Actions	False Alarms	Lightning
	Park	Mutual Aid							
1982	19	1	216.5	60				1	
1983	23	4	70.5	37					1
1984	25	3	538.2	182					
1985	25	0	161.5	51			3		
1986	23	4	1331.3	654	3	45.2	3		
1987	30	2	1180.2	228	5	288.1	7	1	
1988	33	2	616.8	125	2	47.5	12	4	1
1989	32	2	247.1	60	1	30	3	1	
1990	34	2	310.7	109	2	32.8	8	3	
1991	27	7	72	40			8	3	
1992	49	32	192.6	47.7	1	65	3	7	
1993	34	16	408	341.6	5	298.4	1	16	
1994	42	40	547.4	191.5	5	303.6	19	19	2
1995	52	43	738.3	253	6	440.3	2	17	
1996	40	43	466	244.1	5	466.8	8	24	1
1997	22	9	33.5	23.7	8	895.7		10	1
1998	28	17	72.4	48.5	8	485.4	3	3	2
1999	57	48	363.6	70	5	200.1	4	4	1
2000	25	17	488.9	119.8	5	221	16		
2001	31	16	334.9	170	9	576.7	13	1	
2002	16	10	512.1	396	3	289	23		
2003	19	1	660.6	204.9	8	632	26		

THIS TABLE WAS COMPILED FROM DATA OBTAINED FROM THE SHARED APPLICATION COMPUTER SYSTEM (SACS)

APPENDIX H

FIRE PREVENTION ANALYSIS

FIRE PREVENTION ANALYSIS

The major causes of wildland fires at Indiana Dunes National Lakeshore are starts from the numerous railways which crisscross through the lakeshore as well as from human

2. The cause and origin will be determined on every fire.
Follow up investigations will be conducted as necessary.

Responsible person: Incident Commander, Assistant Fire Management Officer, and Fire Management Officer. (On Going)
Law Enforcement personnel will be called upon for investigations as Necessary.

3. Every attempt will be made to prosecute and collect damages (the cost of suppression as well as actual damages) on any fire in which an investigation can determine the actual cause of the fire.

Responsible person: Law Enforcement, the Assistant Fire Management Officer and the Fire Management Officer.

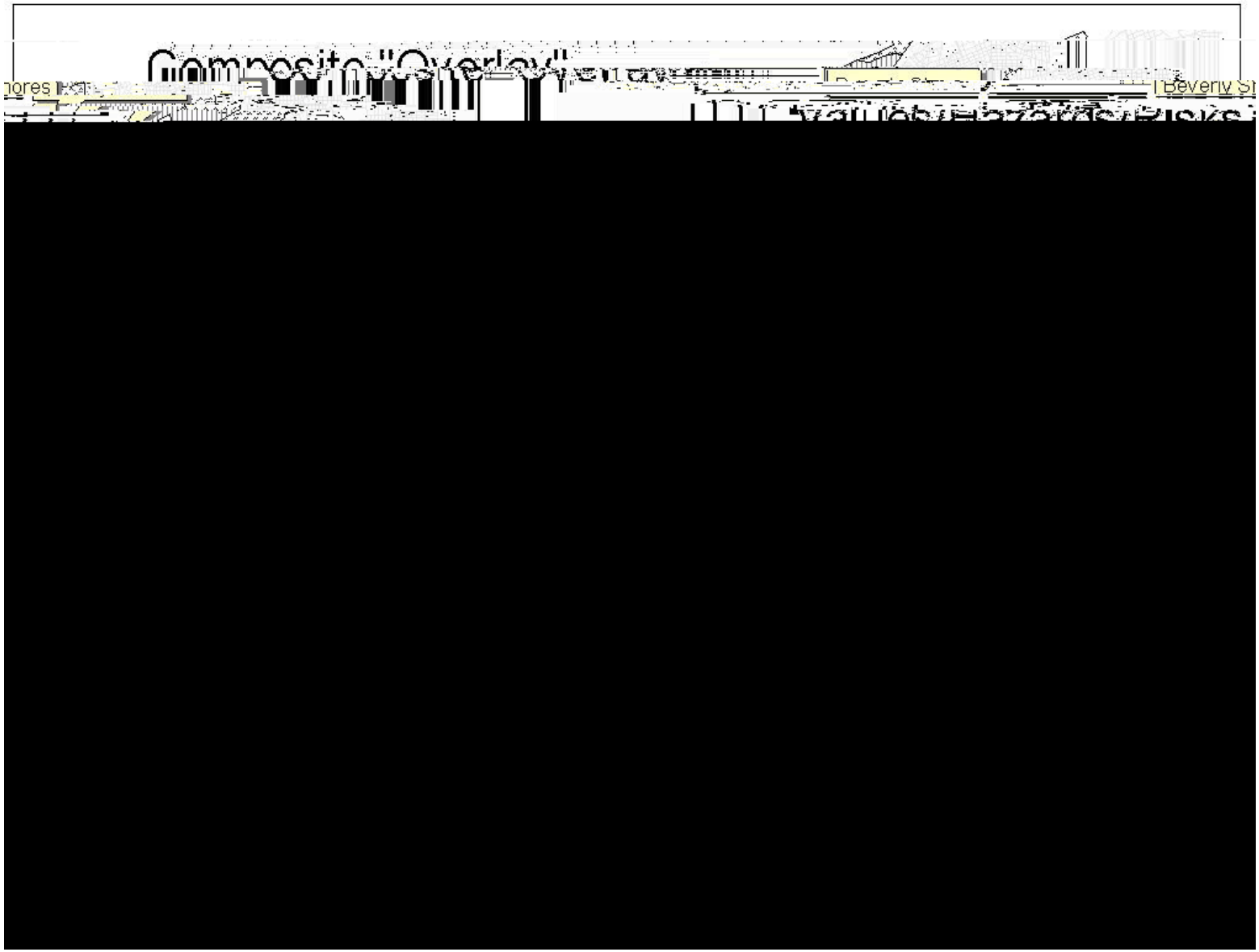
RAILROAD

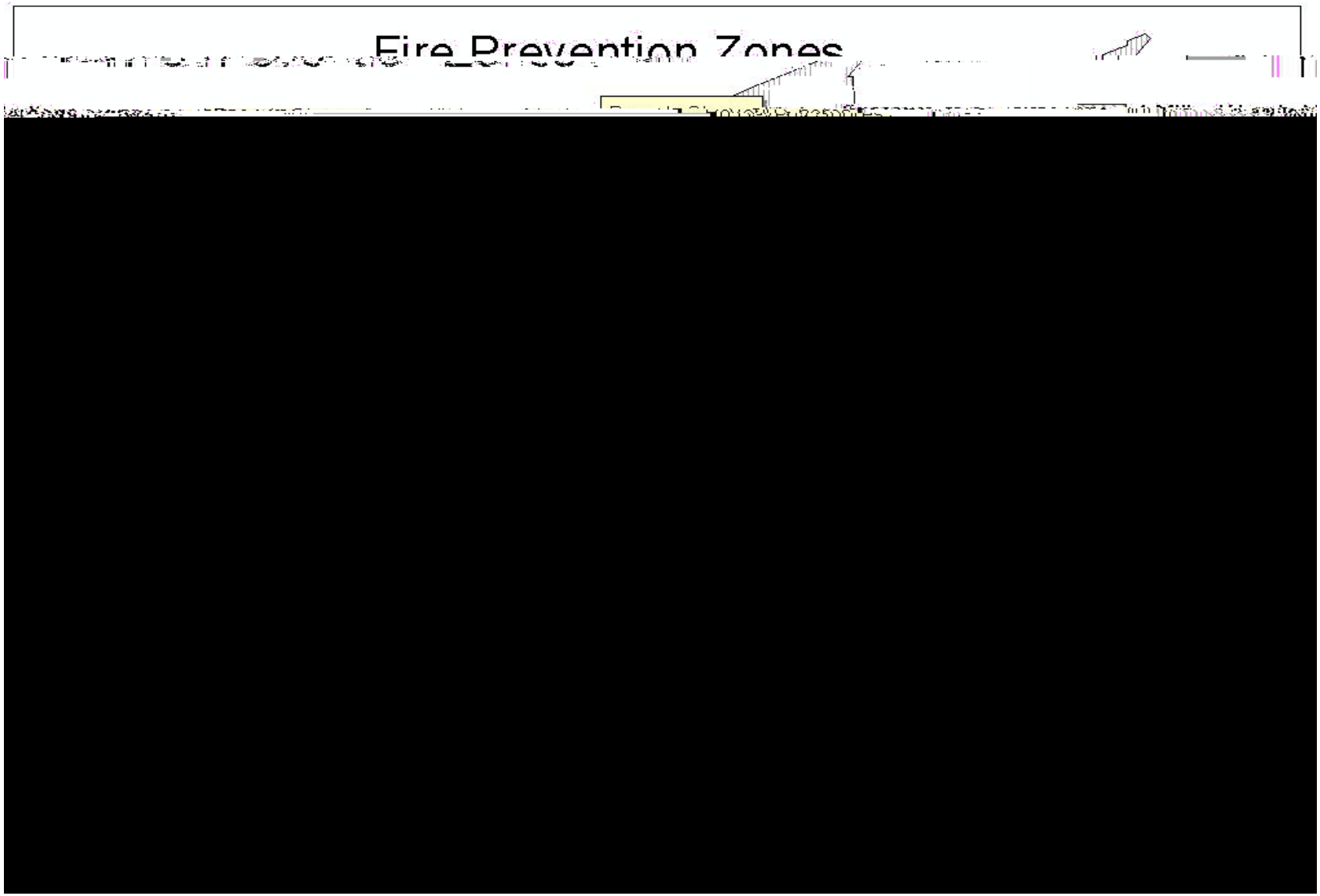
1. Efforts will be made to further coordinate with the railroad companies in regards to mutually beneficial fuels treatment programs along the railroad corridors to help ensure a reduction in not only number of starts but intensity of fires as well.

Responsible person: The Assistant Fire Management Officer and Fire Management Officer

2. The lakeshore may pursue methods to recuperate the loss of funds in suppressing wildland fires on NPS lands as a result of starts from the railroads.

Responsible person: The Fire Management Office (FMO & AFMO) as well as Law Enforcement.




Fire Prevention Zones

FIRE PREVENTION ZONE 1 - MILLER WOODS, NORTH OF GRAND CALUMET RIVER

HAZARD

Low — Mixed open dunes, intradunal ponds, and grasses. The grasses are classified as moderate; they are primarily on the southwest side.

VALUE

Low — No structures or natural resources that would be threatened by wildfire.

RISK

High — The historical fire occurrence is high from children or incendiary causes.

SPECIFIC FIRE PREVENTION ACTIONS REQUIRED

1. Regular patrols at all times during fire season, especially when in staffing level 4 or 5.

2. Continue developing a public education program oriented specifically toward the local residents that would emphasize fire education as well as prevention.

Responsible person: Assistant Fire Management Officer, Interpretation Staff, Douglas Center Environmental Education Supervisor, Fire Management Officer.

FIRE PREVENTION ZONE 2 – MILLER WOODS, WEST OF GRAND AND NORTH OF THE B & O RAILROAD TRACKS

HAZARD

Moderate — Oak savanna, grasses, intradunal ponds with some small cattail areas.

VALUE

Low — There are no structures or other resources that would be threatened by wildfire within the national lakeshore boundary. There are two areas where structures are just outside the boundary, north of the Douglas Center and north of the intersection of the Harbor Belt and the Conrail railroad.

RISK

High The historical fire occurrence is extremely high, with the causes being railroad and incendiary.

SPECIFIC FIRE PREVENTION ACTIONS REQUIRED

1. Regular patrols along the three railroads, Harbor Belt, Conrail, and the B&O, during fire season, especially when the staffing level is 3 or higher.

2. Continue developing a public education program oriented specifically toward the local residents that would emphasize fire education as well as prevention.

3. Concentrate on railroad fire prevention.

Responsible person: Assistant Fire Management Officer, and the Fire Management Officer.

FIRE PREVENTION ZONE 3 – TOLLESTON DUNES AND LONG LAKE WETLAND WEST OF COUNTY LINE ROAD (LAKE & PORTER CO RD)

HAZARD

Moderate Oak Savanna, grasses, with some cattails

VALUE

Low There are no significant structures or natural resources in the fire prevention zone that would be threatened by wildfire. There are structures just outside the national lakeshore boundary.

RISK

Moderate Risks are associated with human activity, automobiles, and railroads.

SPECIFIC FIRE PREVENTION ACTIONS REQUIRED

1. Regular patrols along the three railroads, Harbor Belt, Conrail, and the B&O, during fire season, especially when the staffing level is 3 or higher.

2. Continue developing a public education program oriented specifically toward the local residents that would emphasize fire education as well as prevention.

3. Concentrate on railroad fire prevention.

Responsible person: Assistant Fire Management Officer, and the Fire Management Officer.

High	Residences within and adjacent to national lakeshore boundary: mesophytic pockets.

RISK

High	Risks are associated with human activity (Indiana Dunes St Park, local communities/residences, campground, beaches, trails), automobiles along roadways, and railroads.

SPECIFIC FIRE PREVENTION ACTIONS REQUIRED

1. Post fire prevention posters on bulletin boards at the campground, Kemil Beach, the visitor center, Mt Baldy, all trail heads and parking lots.

2. Continue developing a public education program oriented specifically toward the local residents that would emphasize fire education as well as prevention.

3. Schedule daily engine patrols especially during periods of staffing level 4 or 5.

HAZARD

Moderate	Grasses, oak savanna, forest, and some cattails.

VALUE

Moderate	Due to the potential to reestablish a oak savanna and the proximity of residential structures surrounding the area..

RISK

Moderate	Recent history has documented 20 fires on this parcel of land from 1997 till 2003. The area sees a high use of off road all terrain vehicles (ATV's)

SPECIFIC FIRE PREVENTION ACTIONS REQUIRED

1. Post fire prevention posters along access points.

2. Continue developing a public education program oriented specifically toward the local residents that would emphasize fire education as well as prevention.

3. Schedule daily engine patrols during periods of staffing level 4 or 5.

Responsible person: Assistant Fire Management Officer, Fire Management Officer.

PROCEDURE USED TO DEVELOP THE FIRE PREVENTION ANALYSIS

The guidelines in the National Park Service **Wildland Fire Prevention Analysis Handbook** were followed. Overall assessments were made of the entire national lakeshore, specifically looked at were hazards, values and risks. These three assessments were combined into a composite product. Utilizing a Geographic Information System (GIS) layers representing existing road systems, vegetation, slope, aspect, structures, topographical, and NFFL fuel models were placed on a map of the park to create polygons of areas determined to be similar as associated with fire behavior.

HAZARD ASSESSMENT

The assessment consisted primarily of ranking park lands by fuel model. The fuels at the national lakeshore in some cases do not fit easily into the standard NFFL fuel models. The fuels, and other resources were put into three classes: low, moderate, and high.

LOW: wetlands, paved areas, roads, sand, fuel model 8 or 9 with less than 20% slope, fuel model 8 or 9 with greater than 20% slope with an aspect of northwest, north, or northeast.

MODERATE: fuel models 1,2,3,4,5; developed areas, fuel model 8 or 9 with greater than 20% slope and aspects of west, southwest, south, southeast and east.

HIGH: cattails, fuel model 6,7,10,11,and 12.

LOW	0
MODERATE	1-2
HIGH	3+

After combining the overlays, it became apparent that there were too many very small areas in the final map. This would be true using computers or any system. To deal with this, another computer program was used called “Neighbors” which caused the very small areas to drop out and be absorbed by the neighboring or surrounding area. This resulted in the map “composite overlay”. The last step was to draw the fire prevention unit boundaries on the map by hand using the composite overlay map and local knowledge of the area as the primary sources of information to select logical unit boundaries according to the hazards, values, and risks as they relate to fire behavior.

APPENDIX I

PREATTACK PLAN

PRE-ATTACK PLANNING CHECKLIST

COMMAND

Pre-attack WFSA (if appropriate)
Pre-positioning needs
Draft delegation of authority
Management constraints
Interagency agreements
Evacuation Procedures
Structural protection needs
Closure procedures

OPERATIONS

Helispot, helibase locations
Flight routes, restrictions
Water sources
Control line locations
Natural barriers
Safety Zones
Stagging area locations

LOGISTICS

ICP, base, camp locations
Road, trails (including limitations)
Utilities

PLANNING

Park base map
Topographic maps

s)sp0.3(8(nf)4(Parea d i9(enencryTJT0.Manedic prf)4(Paacities)-17749 T)sV.1(4(egetions/rf)4(

Will be inserted in final draft

APPENDIX J

DISPATCH PLAN

STANDARD OPERATING PROCEDURES
Communications Center – Fire Dispatch Procedure
Revised December 5th, 2003

Sth

Fire personnel will respond with direction from the AFMO or Fire Captain to initiate an Initial Attack response. If those individuals are not available, any fire unit “in-service” should be contacted for the Initial Attack. The FMO will in be contacted by the AFMO, Fire Captain or Incident Commander and appraised of the situation.

Law enforcement rangers will be dispatched at the direction of the shift supervisor to start an initial investigation of each fire. First arriving units will give dispatch initial size up and exact location of the fire.

C

Dispatching appropriate equipment and personnel
Notifying the Communications Center of the names and number of fire personnel being called to the station
Assigning the Incident Commander

Upon leaving the station the Incident Commander will:

Notify the Communications Center and verify that the engine is in route to the fire.
Upon the engine's arrival at the fire, give a brief size up and order additional resources as necessary

The fire management office will give advance notification to the Communications Center of any major change in the availability of the FMO or AFMO (i.e. out of the area on annual leave, government travel, fire assignment etc.).

FIRST ALARM:

A **First Alarm** is called for when the Incident Commander on-scene determines there is a need for additional fire fighting resources. A First Alarm is a call-out for available on and off duty FirePro funded staff and selected collateral duty firefighters with specialized skills or positions. The IC may make a specific request for mutual aid assistance from area fire departments or assistance from the Resource and Visitor Protection Division. The Communications Center will contact needed resources.

The Communications Center will activate the alert tone and announce over the appropriate park radio frequencies that a First Alarm has been called for (name of fire) at (location) to notify park personnel.

The Communications Center will contact permanent fire personnel via Nextel or a hard line phone.

The Communications Center will contact collateral duty firefighters with First Alarm pagers by calling 219-929-9476, following the recorded instructions and entering the appropriate pager response code as directed.

PAGER RESPONSE CODES:

911 Fire – report to fire station
311 Contact Communications Center

Personnel responding to the call-out will contact the Communications Center with information that they are responding, and will assemble at Fire Station #1 to await further instructions.

Communications Center will contact the Fire Management Officer by telephone, cell phone or pager and provide that individual with an initial status report on the fire.

Fire Management Officer
Chief of Resource Management
Chief Ranger

THIRD ALARM:

A **Third Alarm** is a call-out for available firefighters. It may also include activating additional mutual aid requests, and/or requests for out-of-area resources through the Indiana Interagency Coordination Center.

The Communications Center will activate the alert tone and announce over the park radio frequencies that a Third Alarm has been called for (name of fire) at (location) to notify park personnel monitoring their two-way radios.

The Communications Center will then proceed to contact firefighters by radio, telephone or cell phone.

Personnel will assemble at Fire Station #1, contacting the Communications Center upon their arrival, and await further instructions.

B. Structure/ Vehicle fires

All non-vegetation fires within the park's authorized boundary are the responsibility of local fire departments.

The Communications Center receives the fire report and the dispatcher will immediately call and notify the local fire department giving all the information recorded on the IRIDA form.

The Communications Center will notify emergency personnel by activation of the alert tone and/or a general radio announcement such as:

> "Attention all Fire and Law Enforcement personnel, we have a report of a Structure/ vehicle fire at…."

The law enforcement shift supervisor will direct a law enforcement response.
A fire unit will be assigned by the AFMO or FMO and dispatched by the communications center to respond.

The Communications Center receives the fire report and the dispatcher will immediately call and notify the local fire department giving all the information recorded on the IRIDA form.

If the Communications Center receives a structure fire report when Park personnel are not on duty the following individuals, in order will be notified.

Local Fire Department

AFMO or FMO

On call LE ranger

Chief Ranger

Chief of Resource Management

The on call LE ranger will respond to investigate, confirm location and nature of the fire. A Fire unit may be assigned by the AFMO and dispatched by the communications center to respond and size-up the situation. No suppression activities will occur by park personnel on vehicle/structure fires. County/City/local fire units will be called upon to suppress all vehicle and structural fires.

The AFMO or FMO, if not responding will be notified, if the responding resources determine that the vehicle/structure fire has the potential to spread into surrounding vegetation and become a wildland fire.

Under no circumstances will a law enforcement ranger or wildland firefighter attempt to ventilate or enter the structure for the purpose of suppressing the fire.

APPENDIX K

WILDLAND FIRE SITUATION

A. ANALYSIS

Incident Name: _____ ___
_____

Jurisdiction: _____ ___
_____

Date and Time Completed: _____ ___
_____

This page is completed by the Agency Administrator(s).

Section I, WFSA Information Page

I.	Wildland Fire Situation Analysis
To be completed by the Agency Administrator(s)	
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	
- Complexity Matrix/Analysis * _____	
- Risk Assessment/Analysis * _____	
Probability of Success * _____	
Consequences of Failure * _____	
- Map2	

Section II. Objectives and Constraints

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

To be Completed by the Agency Administrator(s)

A. Objectives (Must be specific and measurable)

- Public

- Firefighter

B. Constraints

This page is to be completed by the Fire Manager and/or Incident Commander.

Section III. Alternatives

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 wiBr

I.	Attach maps for each alternative

This page is completed by the Agency Administrator(s), FMO and/or Incident Commander.

Section IV. Evaluation of Alternatives

A. Evaluation Process: Conduct an analysis for each element of each objective and each alternative. Objectives shall map

This page is to be completed by the Agency Administrator(s) and Fire Manager and/or Incident Commander.

Section V. Analysis Summary

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).

V. Analysis Summary

To be Completed by the Agency Administrator(s) and Fire Manager / Incident Commander

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

_____

VI. Decision

The Selected Alternative is: _____

Rationale:

_____	_____
Agency Administrator's Signature	Date/Time

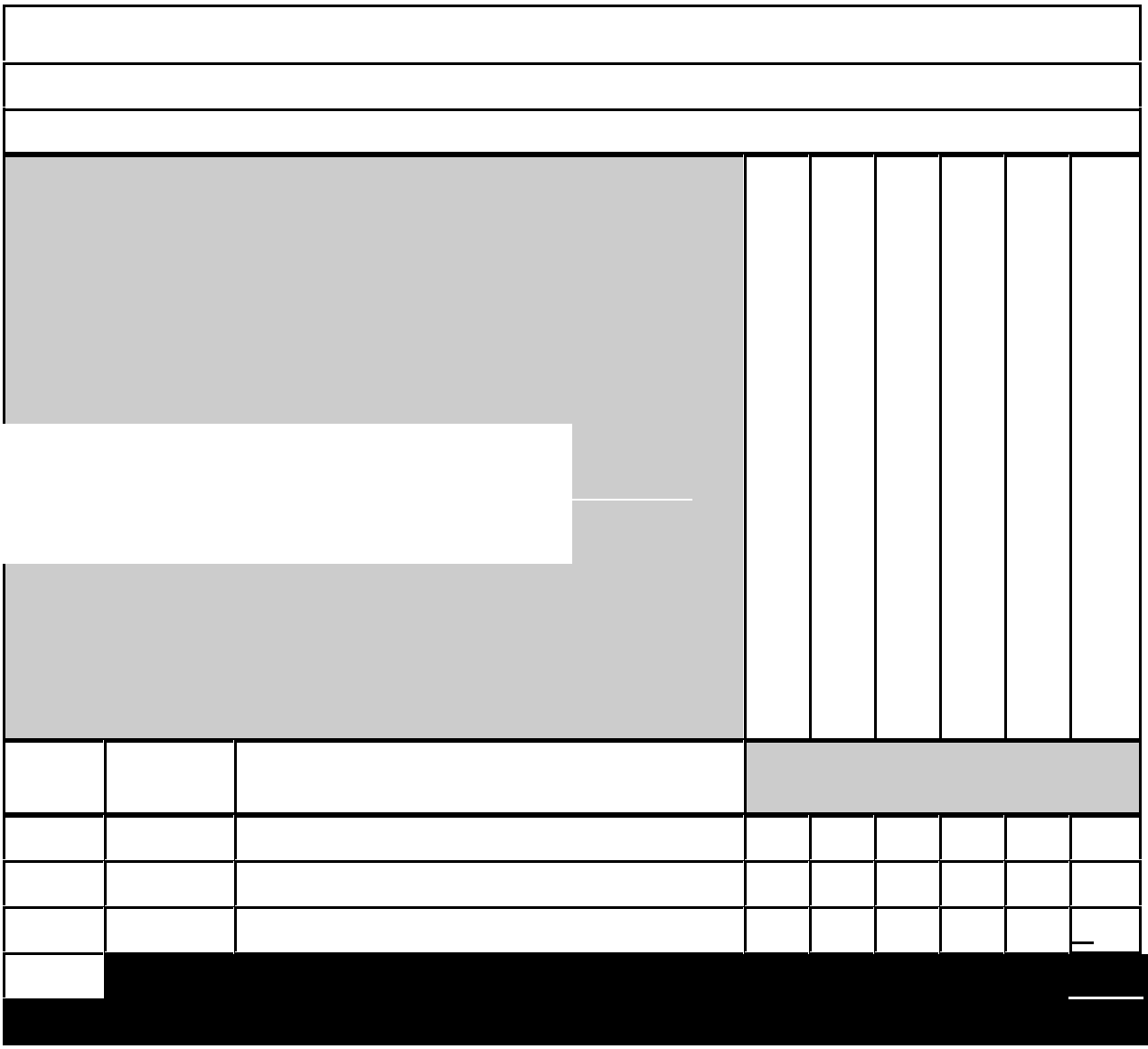
This Section is completed by the Agency Administrator(s) or designate.

Section VII. Daily Review

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 to be completed by the Agency Administrator(s). A signature, date, and time are provided once all conditions of the WFSA are met.



(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 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 that 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 agr

FIRE COMPLEXITY ANALYSIS

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. 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**_____

Indiana Dunes National Lakeshore
Porter, Indiana

DELEGATION OF AUTHORITY

As of (time) , (Date) , I have delegated authority to manage the (Fire Incident

APPENDIX L

TEN YEAR
FUELS MANAGEMENT PLAN

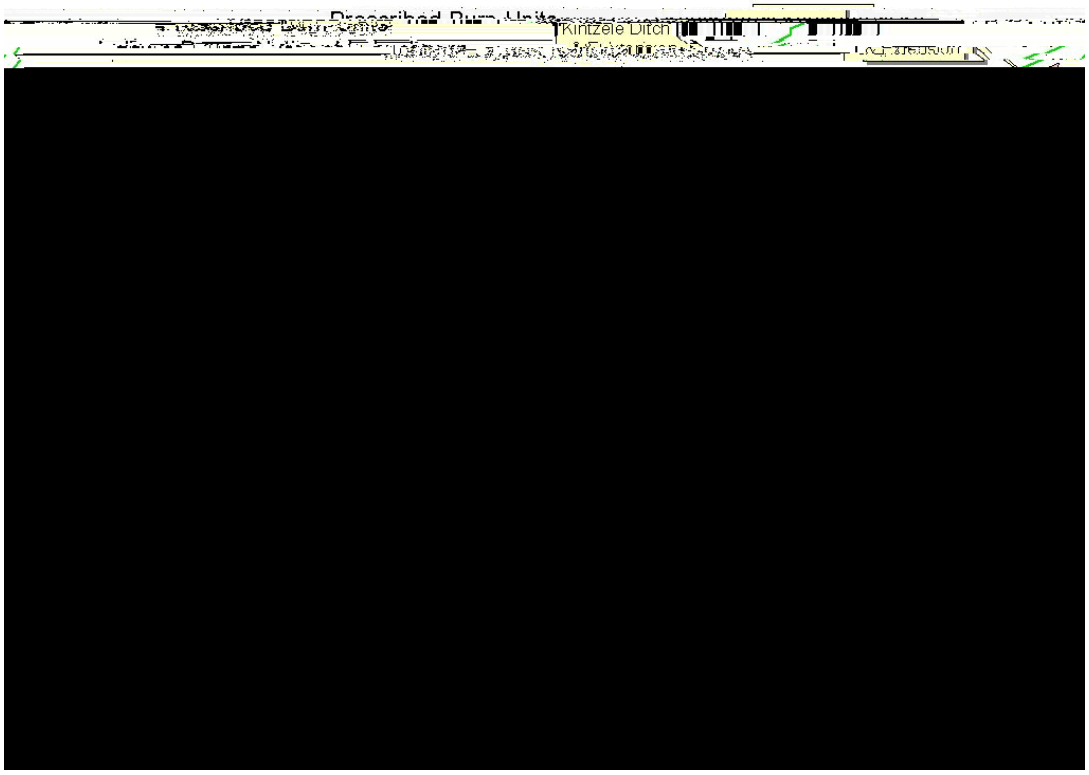
FUELS MANAGEMENT PLAN

This plan is the preferred alternative from the Indiana Dunes National Lakeshore Environmental Assessment (EA) and responds to the public's issue regarding the need to apply prescribed fire on more acreage within the national lakeshore. Under this plan, fire management activities would include prescribed fire and mechanical fuel reduction. The prescribed fire program would include 4 expanded units and **19 new** burn units. Burns Ditch West would be expanded from 29 acres to 125 acres to include all of Burns Ditch. Kintzele prescribed fire unit would be expanded to 101 acres. The Inland Marsh and Kansas Avenue units would also be expanded by 7 acres and 160 acres respectively to incorporate any newly acquired Reservation of Use (ROU) houses. New burn units would include: Calumet Dune (53 acres), Calumet Prairie (145 acres), Enterprise Zone (51 acres), Cowles Bog (350 acres) Dunes Ridge (110 acres), Woodlake Dune Savanna (81 acres), Glenwood Dune (160 acres), Grand Boulevard (53 acres), Hobart Prairie Grove (90 acres), Marquette Trail (39 acres), and SW Miller Woods (236 acres) (see Figure 2-4, Table 2-3). The goals of these new units would be to reduce hazardous fuels and to restore historically occurring fire-dependent habitats. There would be no manual thinning in the Calumet Dune unit. Under this

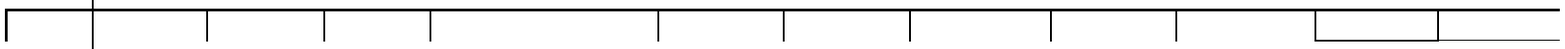
Prescribed Fire Unit	Acreage of Prescribed Fire Unit	Timing of Prescribed Fire	Description
		available.	Transportation' rail line. The vegetation consists of oak savanna/woodland on the dunes with marshes between.
Cowles Bog	350 acres	Burned every 3-10 years when resources and favorable condition are available.	The Cowles Bog prescribed fire unit is a wetland dominated by cattails located east of Mineral Springs road north of Hwy 12 and south of Dune Acres.
Cowles Dune	511 acres	Spring 2003	Cowles Dunes prescribed fire unit is covered by oak savanna and dune vegetation types. It also contains some of the steepest topography in the national lakeshore. The project area is located on the Tolleston and recent dune complexes, along Lake Michigan.
Douglas Center	6 acres	Every fall	The Douglas Environmental Education Center is located in Miller Woods, an area of oak savanna and oak forest, also the area of Indiana Dunes National Lakeshore with historically the highest fire frequency. It is located between a set of railroad tracks (Conrail RR) and an old railway grade covered with gravel called the Harbor Belt.
Dunes Ridge	110 acres	Burned every 3-10 years when resources and favorable condition are available.	The Dunes Ridge prescribed fire unit is oak woodland located approximately 1 mile north of Hwy 12 east of Kemil Road.
Furnessville	100 acres	Spring 2006	The Furnessville prescribed fire unit is located in the east unit of the national lakeshore. Bounded on the north by Route 12 it is one of the more public prescribed fire units in the national lakeshore. The Furnessville prescribed fire unit consists primarily of oak woodland, but also contains some oak savanna and prairie.
Woodlake Dune Savanna	81 acres	Burned every 3-10 years when resources and favorable condition are available.	This prescribed fire unit is located in Gary, Indiana, just east of County Line Road, between Lake and Porter Counties, south of Hwy. 12. This unit consists of a complex of oak savanna and cattail marshes with aspen/willow transitional areas.
Glenwood Dune	160 acres	Burned every 3-10 years when resources and favorable condition are available.	Glenwood Dune prescribed fire unit is a savanna/woodland complex located south of Furnessville Road in the east unit.
Grand Boulevard	53 acres	Burned every 3-10 years when resources and favorable condition are available.	The Grand Boulevard prescribed fire unit is located in Miller, south of the Marquette Trail and north of the Norfolk Southern (old Conrail) railroad, and east of Grand Boulevard. The unit consists of oak savanna with sedge meadows and cattail marshes.
Hobart Prairie Grove	90 acres	Burned every 3-10 years when resources and favorable	The Hobart Prairie prescribed fire unit is located near Liverpool Road in Hobart, Indiana. The area is considered a high quality oak

Prescribed Fire Unit	Acreage of Prescribed Fire Unit	Timing of Prescribed Fire	Description
		condition are available.	savanna.
Howes Prairie	84 acres	Spring 2003 & 2006	The project area is located between Mineral Springs Road and Waverly Road approximately ½ mile north of Route 12 and adjacent to the town of Dune Acres and the community of Porter Beach. The area contains high dune ridges encircling Howes Prairie. Oak savanna and oak woodland cover the ridges and the bowls or low areas encircled by the ridges contain a mosaic of wet and dry prairie.
Inland Marsh	446 acres	Subunit 1: Fall 2002 & 2006 Subunit 2: Spring 2004 Subunit 3&4: Fall 2005 Subunit 5: Spring 2003 & 2007	The Inland Marsh prescribed fire unit consists of 5 subunits, which are located on the Tolleston Beach Ridge. The ridge formed four to five thousand years ago and had a pre-historic natural burn interval of three to ten years. The units consist of a complex of oak savanna and cattail marshes with aspen transitional areas. They are located southwest of the town of Ogden Dunes and east of County Line Road. Unit 5, commonly known as Long Lake prescribed fire unit, is not contiguous with the other units.
Kansas Avenue	219 acres	Spring 2005	The Kansas Avenue prescribed fire unit consists of oak woodland, oak savanna, and one corner contains a wet marshy area of grasses and shrubs. It is located east of Beverly Shores to Central avenue, between Montana and Kansas Avenues north of Beverly Drive in Porter County.
Kintzele	101 acres	Spring 2004	This unit is located east of the town of Beverly Shores, bounded by East Lake Park Ave. to the west (an old sand road), open sand dunes and Lake Michigan to the north, Beverly Drive to the south, and east to the Mt. Baldly hiking trails. The area consists of oak woodland with a small component of oak savanna and five old homesites which have had the houses removed and the basements filled in with sand.
Lupine Lane	74 acres	Spring 2003 & 2006	The project area is located between Mineral Springs Road and Waverly Road approximately ½ mile north of Route 12 and adjacent to the town of Dune Acres and the community of Porter Beach. The area contains high dune ridges nearly encircling Lupine Lane. Oak savanna and oak woodland cover the ridges and the bowls or low areas encircled by the ridges contain a mosaic of wet and dry prairie.
Marquette Trail	39 acres	Burned every 3-10 years when resources and favorable condition are available.	The Marquette Trail prescribed fire unit is an oak savanna and sand mined area along the Marquette Trail in the west unit of the park

Prescribed Fire Unit	Acreage of Prescribed Fire Unit	Timing of Prescribed Fire	Description
Mnoké Prairie	181 acres	Fall 2003 & 2006	In pre-settlement times, Mnoké Prairie (formerly known as Indian Boundary Prairie) was part of an extensive high quality prairie that extended for miles to the south. In more recent times the area had been plowed and used as an agricultural field. The cultivation of this land ended approximately 30 years ago. Currently, Mnoké Prairie is a degraded tallgrass prairie dominated by non-native, low quality native, and undesirable woody plant species. The prairie also contains some wet prairie areas and the bluff slope north of the prairie contains oak forest with seeps and fens



Dunes National Lakeshore
West Unit



APPENDIX M

MONITORING PLAN

PRESCRIBED FIRE MONITORING PLAN

INDIANA DUNES NATIONAL LAKESHORE

NOVEMBER, 1994

Prepared By: _____

Botanist, Resource Management Division
Indiana Dunes National Lakeshore

Reviewed: _____

Fire Management Officer,
Indiana Dunes National Lakeshore

Recommended: _____

Superintendent,
Indiana Dunes National Lakeshore

Concurred: _____

Regional Fire Management Officer,
Midwest Region

Approved: _____

Fire Technology Specialist,
Branch of Fire and Aviation Management
Boise, Idaho Office

PEER REVIEWS

Reviewed: _____

Noel B. Pavlovic, Plant Ecologist
Lake Michigan Ecological Station,
National Biological Survey

Reviewed: _____

Paul Reeberg, Program Manager

area serves as a meeting place of northern boreal, tallgrass prairie, and eastern deciduous forest species. The park contains over 1400 species of plants, ranking the national lakeshore third with respect to floral diversity within the National Park Service. Populations of over 25% of the State of Indiana's listed Threatened, Endangered, Rare, and Watch List plant species can be found within the national lakeshore.

Fire has played a significant role in the shaping of the vegetative communities within the Indiana Dunes National Lakeshore. Wildfires, ignited by either lightning or Native Americans, frequently burned the area pre-settlement times (before 1845 AD). Early residents and historical records from the area show extensive prairies, pine forests, sedge meadows, and other fire dependent plant communities which are now very rare within the park. Although all wildfires are currently suppressed within the national lakeshore, excellent examples of remnant fire-dependent plant communities such as oak savannas, sedge meadow, and tallgrass prairies still remain. Fire suppression associated with settlement, continued ecosystem fragmentation, encroachment of fire-sensitive hardwoods, and exotic species invasions, however, all threaten these remaining remnant communities.

The Fire Management Plan for the national lakeshore was revised and approved in 1992. Prior to this most recent revision, the use of prescribed fire at the national lakeshore was limited to narrowly defined research burns and utility corridor maintenance turnr. The results of this research, however, has clearly demonstrated the benefits derived through fire reintroduction in maintaining and/or restoring the fire-adapted plant communities within the park. These results have also identified a distinct need for the establishment of a broader based, long-term program utilizing management ignited prescribed fires (MIPF) at the national lakeshore. The 1992 Fire Management Plan has approved the use of prescribed fire as a routine management tool at Indiana Dunes. A specific objective of the prescribed turn program at the national lakeshore is to establish a fire monitoring program to assist in identifying long-term fire effects.

FIRE MANAGEMENT UNITS

There are three fire management units (FMU) for the national lakeshore which are spread over two geographic park management units (East Unit and West Unit). Table 1 provides a brief summary of the three FMU's at Indiana Dunes National Lakeshore.

Table 2. Vegetation Types and Monitoring Plot Requirements.

Vegetation Type	Plot Requirements	Monitoring Type Variables	RX Burn Objectives
1) Black Oak (BO) Forest	75% or greater tree dominance by BO with 50% or greater canopy closure	BO density, canopy cover	Reduce woody species density and canopy by 20-35%
2) Black Oak Savanna	75% or greater tree dominance by BO with 25-50% canopy closure	BO density, canopy cover, relative cover of herb/woody understory species	Reduce woody species density and canopy by 15-30%; Increase lupine and nectar plants by 15-30%
3) Mesic Sand Prairie	30% or less woody species cover with 50% or greater herbaceous cover	Woody species density, relative cover of native forb and grass species	Reduce woody species density 15-30%; Increase native herbs by 20-35%
4) Aspen Grove	75% or greater tree dominance by aspen with 50% or greater canopy closure	Aspen density, canopy cover, relative cover of herbaceous understory species	Reduce aspen density and cover by 20-35%; Increase native herbs/grasses by 20-35%
5) Sedge Meadow Wet Prairie	30% or less woody species cover with 50% or greater herbaceous cover	Woody species density, relative cover of native forb, sedge, and grass species	Reduce woody species density by minimum of 15%; Increase native forb, sedge, grass species by minimum of 20%

A total of up to 10 monitoring plots will be established initially within each of the identified vegetation types. Plot numbers may be increased or reduced dependent on personnel availability and the amount of time required to sample each plot. To assist with the monitoring of long-term vegetational change and fire effects, up to five additional control (non-treatment) plots will also be established for each community type within areas that will remain unburned.

Monitoring Plot Restrictions:

Monitoring plots will not be established within 20 meters of roadways, utility corridors, or trails in order to avoid unwanted vandalism of plot markings or trampling of plots. Plots will not be established within 10 meters of distinct changes in vegetational cover in order to avoid edge effects and ecotone conditions associated with changes in fuel types.

Plot Locations:

The park's Geographical Information System (GIS) will be used to identify potential monitoring plot locations based on the desired vegetation type, plot requirements, and plot restrictions; and to randomly identify plot origin points within areas meeting the above requirements. Field reconnaissance will be used to verify appropriateness of areas for monitoring plot establishment.

per year. Beginning with the fourth year, only one, full-time position (GS-7) will be needed to continue the fire monitoring program.

The Fire Monitoring Plan has been developed to provide guidance to the national lakeshore in establishing sound fire monitoring protocols and should remain a working document, allowing for modification as deemed necessary. Similarly, the monitoring results should serve as feedback to the park's Fire Management Plan by assisting in refining MIPF burn prescriptions within specific vegetational habitats and in the establishment of burn objectives. Care should be taken, however, to avoid making hasty management decisions based upon only a few years worth of data. Effective long-term fire management will require a comprehensive understanding of the various interactions between vegetation and fire. This level of understanding can only be obtained from long-term monitoring and data analysis.

To be updated by the fire effects staff at INDU

APPENDIX N

CALL OUT LIST

DUE TO INDIVIDUAL PRIVACY CONCERNS, THIS CALL OUT LIST WILL BE ATTACHED TO THE FINAL DRAFT OF THE FIRE MANAGEMENT PLAN WHICH WILL BE KEPT IN THE FIRE MANAGEMENT OFFICE.

APPENDIX O

FIRE AGREEMENTS

Indiana Dunes National Lakeshore is in the process of updating all of its cooperative agreements or Memorandum of Understandings (MOU's) with all of our cooperator agencies. The previous agreements were established with the previous Fire Management Plan (dated 1992).

The following is a list of MOU's in the process of being updated. MOU's should be in place by the end of calendar year 2005 (January 2006)

Indiana Dunes State Park
Hoosier National Forest
Medewin National Forest
Indiana Interagency Coordination Center (IICC)
Porter County
Lake County
LaPorte County
Porter County Fire Association
Porter Fire Department
Chesterton Fire Department
Ogden Dunes Fire Department
Burns Harbor Fire Department
Pines Fire Department
Beverly Shores Fire Department
Gary Fire Department
Hobart Fire Department
Michigan City Fire Department
Portage Fire Department
Lake Station Fire Department
U.S Steel Fire and Security
ISG Steel (Wackenhut Coorporation)
Northern Indiana Public Service Company (NIPSCO)

CSX
Conrail

Northern Indiana Commuter Transportation District

Will be inserted as they are updated and completed

APPENDIX P

INTERAGENCY CONTACTS

Lakes of the Four Seasons Fire Department
Emer. Phone#: 219-988-2121
Bus. Phone#: 219-988-4309
Station 2 Phone#: 219-662-7576

Liberty Township Fire Department
Emer. Phone#: 219-926-1325 (911)
Bus. Phone#: 219-926-5215

Michigan City Fire Department
Emer. Phone#: 219-872-5511 (911)
Bus. Phone#: 219-873-1440

Midewin National Tallgrass Prairie
Bus. Phone#: 815-423-6370

Morgan Township Fire Department
Emer. Phone#: 219-463-5555
Bus. Phone#: 219-462-1665

Pine Township Volunteer Fire Department
Emer. Phone#: 219-874-7515
Bus. Phone#: 219-872-2796

Portage Fire Department
Emer. Phone#: 219-762-3113 (911)
Bus. Phone#: 219-762-7404

Portage Township (South Haven) Fire Department
Emer. Phone#: 219-759-3611
Bus. Phone#: 219-759-3919

Porter County Fire Dispatcher
Emer. Phone#: 219-926-1241
Bus. Phone#: 219-465-1515 (ask for “radio”)

Porter Volunteer Fire Department
Emer. Phone#: 219-926-1241
Bus. Phone#: 219-926-1226

Porter Township Volunteer Fire Department
Emer. Phone#: 219-462-1403
Bus. Phone#: 219-464-2711

Union Volunteer Fire Department
Emer. Phone#: 219-759-2611
Bus. Phone#: 219-759-3321

U S Steel Industries Inc.
Chesterton Office Phone#: 219-983-9925
Gary Office Phone#: 219-888-4925

Valparaiso Fire Department
Emer. Phone#: 219-462-2131
Bus. Phone#: 219-462-8325

APPENDIX Q

CULTURALLY SIGNIFICANT RESOURCES

Historic	Resource	Resource Components	GPS Coordinates	Elements	Values at Risk	Risk Conditions	Inventory Metho
Context						or Activities	Proposed
Prehistory							
Paleo	Archeological Sites	Debitage (chert flakes) Projectile Point Fragments	NA	Debitage (chert flakes) Projectile Point Fragments	Debitage (chert flakes) Projectile Point Fragments	Heavy equipment on site. Fireline cut through site.	Determined by Midwe Archeological Center (MWAC)

Archaic	Archeological Sites	Debitage (chert flakes) Fire Cracked Rock Projectile Point Fragments	NA	Debitage (chert flakes) Fire Cracked Rock Projectile Point Fragments	Debitage (chert flakes) Fire Cracked Rock Projectile Point Fragments	Heavy equipment on site. Fireline cut through site.	Determined by Midwe Archeological Center (MWAC)
Woodland	Archeological Sites	Debitage (chert flakes) Fire Cracked Rock Projectile Point Fragments Tool Fragments Ceramic Sherds	NA	Debitage (chert flakes) Fire Cracked Rock Projectile Point Fragments Tool Fragments Ceramic Sherds	Debitage (chert flakes) Fire Cracked Rock Projectile Point Fragments Tool Fragments Ceramic Sherds	Heavy equipment on site. Fireline cut through site.	Determined by Midwe Archeological Center (MWAC)

Early Settlement	Homestead – i.e. Bailly Homestead and the Bailly Cemetery	Log Building with Wood Siding i.e. Main House	Bailly Homestead 492134 E, 4607898 N Bailly Cemetery 492376 E,4609033 N	Concrete Block Foundation, Logs, Chinking, Lumber, Wood Siding, Wood Shingles	Concrete Block Foundation, Logs, Chinking, Lumber, Wood Siding, Wood Shingles	Adjacent fuels. Heavy equipment on site. Back firing operations.	NA
		Log Buildings i.e. Chapel Two-Story Cabin Fur Trader's Cabin		Brick and/or Stone Foundations, Logs, Chinking, Lumber, Wood Shingles	Brick and/or Stone Foundations, Logs, Chinking, Lumber, Wood Shingles	Adjacent fuels. Heavy equipment on site. Back firing operations.	NA
		Brick Building i.e. The Brick House		Brick Foundation, Brick Walls, Lumber, Wood Shingles	Brick Foundation, Brick Walls, Lumber, Wood Shingles	Adjacent fuels. Heavy equipment on site. Back firing operations.	NA
		Cemetery		Concrete Block Walls and Earthen Backfill	Concrete Blocks, Mortar, Earthen Backfill	Adjacent fuels. Heavy equipment on site. Back firing operations.	Cultural Landscape F

	Resource	Resource Components	GPS Coordinates	Elements	Values at Risk	Risk Conditions	Inventory Metho

Historic							
Context						or Activities	Proposed
Euro-American							

	i.e. Chellberg Farm, Sugar Bush, Sears House, Wahl House, Irene Nelson House, Lundeen House	Chellberg Chicken Coop Chellberg Corn Crib Chellberg Granary Chellberg Pump House Irene Nelson Workshop Irene Nelson Corn Crib Irene Nelson Chicken Coop Irene Nelson Barn Irene Nelson Summer					

		Concrete Block Buildings i.e. Chellberg Sugar Shack Irene Nelson Garage		Concrete Blocks, Mortar, Lumber, Shingles, Sheet Metal Roof	Concrete Blocks, Mortar, Lumber, Shingles, Sheet Metal Roof	Adjacent fuels. Heavy equipment on site. Back firing operations.	NA
		Landscape		Orchards i.e. Chellberg Farm Irene Nelson House	Fruit Trees	Adjacent fuels. Heavy equipment on site. Back firing operations.	Cultural Landscape Reports
	Resource	**Resource Components**	**GPS Coordinates**	**Elements**	**Values at Risk**	**Risk Conditions**	**Inventory Metho**

Historic							
Context						or Activities	Proposed
A.							
B. Recreation/Residential Development 1890's – 1940's	Porter Beach – Solbeck Cottage	Wood Frame Building	Solbeck Cottage 494390 E, 4612000 N	Concrete Block Foundation, Lumber, Asphalt Shingles	Concrete Block Foundation, Lumber, Asphalt Shingles	Adjacent fuels. Back firing operations.	Determination of Elig
C. Architectural Design 1930's – 1970's	Beverly Shores -Century of Progress Architectural District - i.e. Wieboldt-Rostone House Florida Tropical House Cypress Log Cabin and Guest House House of Tomorrow Armco-Ferro House NOTE: The Century of Progress houses are occupied residences under a leasing program. **Assess the sites for probable locations of**	Steel Frame Building with Rostone Sheathing i.e. Wieboldt-Rostone House	Wieboldt-Rostone House 499861 E, 4614706 N Florida Tropical House 499898 E, 4614729 N Cypress Log Cabin 500012 E, 4614721 N House of Tomorrow 499979 E, 4614713 N Armco-Ferro House 499897 E, 4614675 N	Concrete Foundation, Rostone (Synthetic Stone), Steel, Concrete, Lumber, EDPM (Rubber) Roofing	Concrete Foundation, Rostone (Synthetic Stone), Steel, Concrete, Lumber, EDPM (Rubber) Roofing	Adjacent fuels. Back firing operations.	Cultural Landscape F

	automobiles, barbecue grills with propane tanks, lawn mowers, and any other equipment that requires a fuel source.						
		Wood Frame Building with Concrete Stucco i.e. Florida Tropical House		Concrete Foundation, Lumber, Stucco, EDPM (Rubber) Roofing	Concrete Foundation, Lumber, Stucco, EDPM (Rubber) Roofing	Adjacent fuels. Back firing operations.	Cultural Landscape F
		Wood Frame Buildings with Log Siding i.e. Cypress Log Cabin Cypress Guest House		Half Log Siding, Lumber, Wood Shingles, Stone and Brick Chimney, Mortar	Half Log Siding, Lumber, Wood Shingles, Stone and Brick Chimney, Mortar	Adjacent fuels. Back firing operations.	Cultural Landscape F
	Resource	**Resource Components**	**GPS Coordinates**	**Elements**	**Values at Risk**	**Risk Conditions**	**Inventory Metho**

Historic							
Context						or Activities	Proposed
	Beverly Shores -Century of Progress Architectural District (cont.)	Steel, Concrete and Wood Frame Building with Copper Sheathing i.e. House of Tomorrow		Concrete Foundation, Steel, Concrete, Lumber, Copper Siding, Felt and Tar Roof	Concrete Foundation, Steel, Concrete, Lumber, Copper Siding, Felt and Tar Roof	Adjacent fuels. Back firing operations.	Cultural Landscape F

	Resource	**Resource Components**	**GPS Coordinates**	**Elements**	**Values at Risk**	**Risk Conditions**	**Inventory Metho**