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Environmental Assessment

Indian Lake Dam Access Road Project

Perry County, Indiana

Tell City Ranger District

Hoosier National Forest

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Abstract: The proposal involves constructing a dam access road upstream of the Indian Lake dam to allow access during high water events when structure integrity or human safety may be in question.

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Preface

In 1991, the Hoosier National Forest completed a comprehensive land management planning effort with the publishing of the Hoosier National Forest Land and Resource Management Plan (*Forest Plan*) that replaced the 1985 *Forest Plan* with a significant amendment (USDA FS 1991b). During this effort, we made a concerted effort to seek out public involvement. With the public's help, we identified issues and alternative approaches to management of the Hoosier National Forest. An environmental impact statement (EIS) was prepared in conjunction with the *Forest Plan* to document the analysis (USDA FS 1990b and USDA FS 1991a). We developed the EIS in accordance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality implementing regulations for NEPA.

The approval of the Record of Decision (USDA FS 1991c) for the final EIS on April 8, 1991 represents the first level of decision-making related to land and resource management planning. This decision determined the desired future condition of the Hoosier National Forest and established the guidance under which we implement future projects.

The second, and final, level of decision-making focuses on the analysis and implementation of management practices and projects designed to achieve the goals and objectives of the *Forest Plan*. This involves site-specific analysis to meet the requirements of the National Environmental Policy Act and specific on-site resource needs.

The environmental assessment (EA) for the proposed Indian Lake Dam Assess Road Project documents the site-specific analysis for project implementation occurring at the second level of decision-making. This EA was initiated as a result of environmental analysis of the proposed project in accordance with NEPA procedures. These procedures afforded interested and affected publics the opportunity to participate. This report was prepared outlining the alternatives for implementing this project, noting any needed mitigation measures and predicting the relevant environmental consequences. The decision maker may now consider the results of this analysis in making an informed decision.

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Environmental Assessment

Indian Lake Dam Access Road

Introduction

Our primary responsibility is to provide healthy, sustainable ecosystems for Americans, present and future. While doing this, we sustain the vitality and diversity of the Hoosier National Forest in perpetuity and provide many benefits.

This proposal implements the USDA Forest Service natural resource agenda and Forest Service mission of “Caring for the Land and Serving People.” It addresses *forest roads* by providing safe access to conduct needed dam maintenance, which in turn provides for the safety of inhabitants downstream of the dam. The proposal addresses *watershed health and restoration* by constructing a well designed road that protects soil and water resources, utilizes an existing eroding old road bed, but also obliterates about 0.10 miles of poorly located and constructed road which will reduce soil erosion and sediment. This proposal also addresses *recreation* by providing a safe, convenient walk to access fishing, hunting, and other dispersed recreation opportunities (USDA FS 1998a).

This EA displays the direct, indirect, and cumulative effects of four alternatives. The proposed action is to construct a new administrative access route into the Indian Lake dam, utilizing an existing, abandoned old roadbed in combination with new construction of a low standard, low speed aggregate-surfaced road. It also includes obliterating that portion of the existing access road that is downstream of the dam.

Purpose of the Proposed Action

The purpose for this proposal is to construct a safe, all-weather access road for the operation and maintenance of a high hazard dam. This will allow access during high water events when structural problems or threats to human safety may occur. This proposal is consistent with the *Forest Plan* guidance for Management Area (M.A.) 2.8, 7.1 and forest-wide guidance (USDA FS 1991b).

Need for the Proposed Action

The existing access road into Indian Lake dam is from Perry County Roads 37 and 39B ending at a small parking area on the southwest side of an unnamed creek. From the end of county road 39B, the access road fords the unnamed creek and ends at the base of the dam. The current access is from below the dam, and if a problem should develop with the dam, this road could be washed out and put personnel in danger who might be responding.

A high hazard dam is one that was built in an area where failure would likely result in loss of human life or excessive economic loss (USDA FS 1993). Development downstream, combined with the presence of two other high hazard dams (Bristow dam - Structure 7) and Lake Celina dam (Structure 5) downstream of Indian Lake Dam (Structure 6), were identified in the 1985

Report for Evaluation of Emergency Potential as justification for rating Indian Lake dam as high hazard (USDA FS 1985).

During large rainfall events, when dams are most vulnerable, the existing road becomes impassable downstream of the discharge of the dam, which makes it impossible to maintain the dam during high water. During the floods in 1997, the lower portion of County Road 39B was under water and fording the unnamed creek was prohibited due to high water. All weather access, upstream of the dam, is essential to act quickly if there are signs of partial or full failure of the dam.

The proposed project would carry out the public safety intent of the Forest Service Manual (USDA FS 1993) to provide all-weather access for operation and maintenance of a high hazard dam during high water events.

FIGURE 1: VICINITY MAP

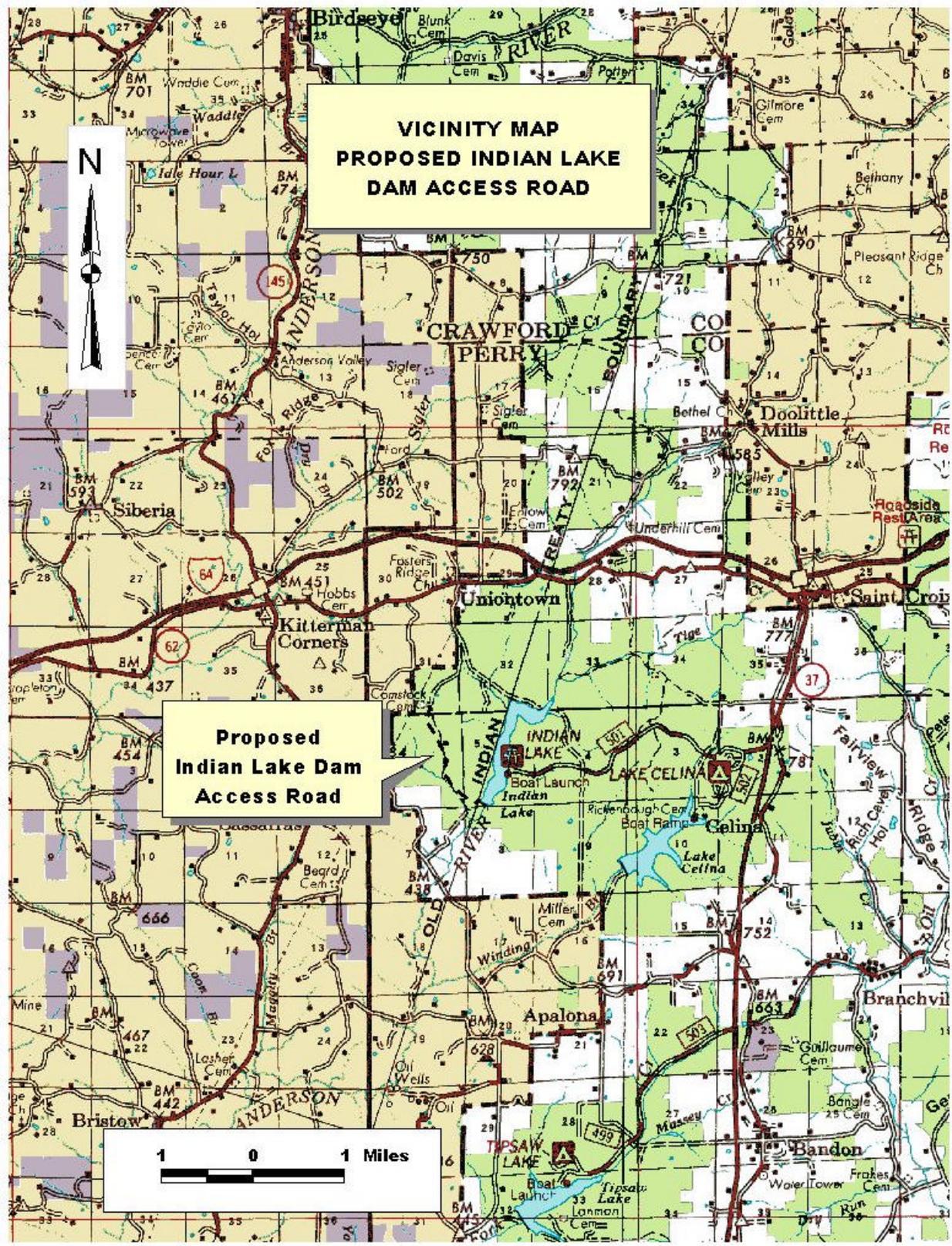
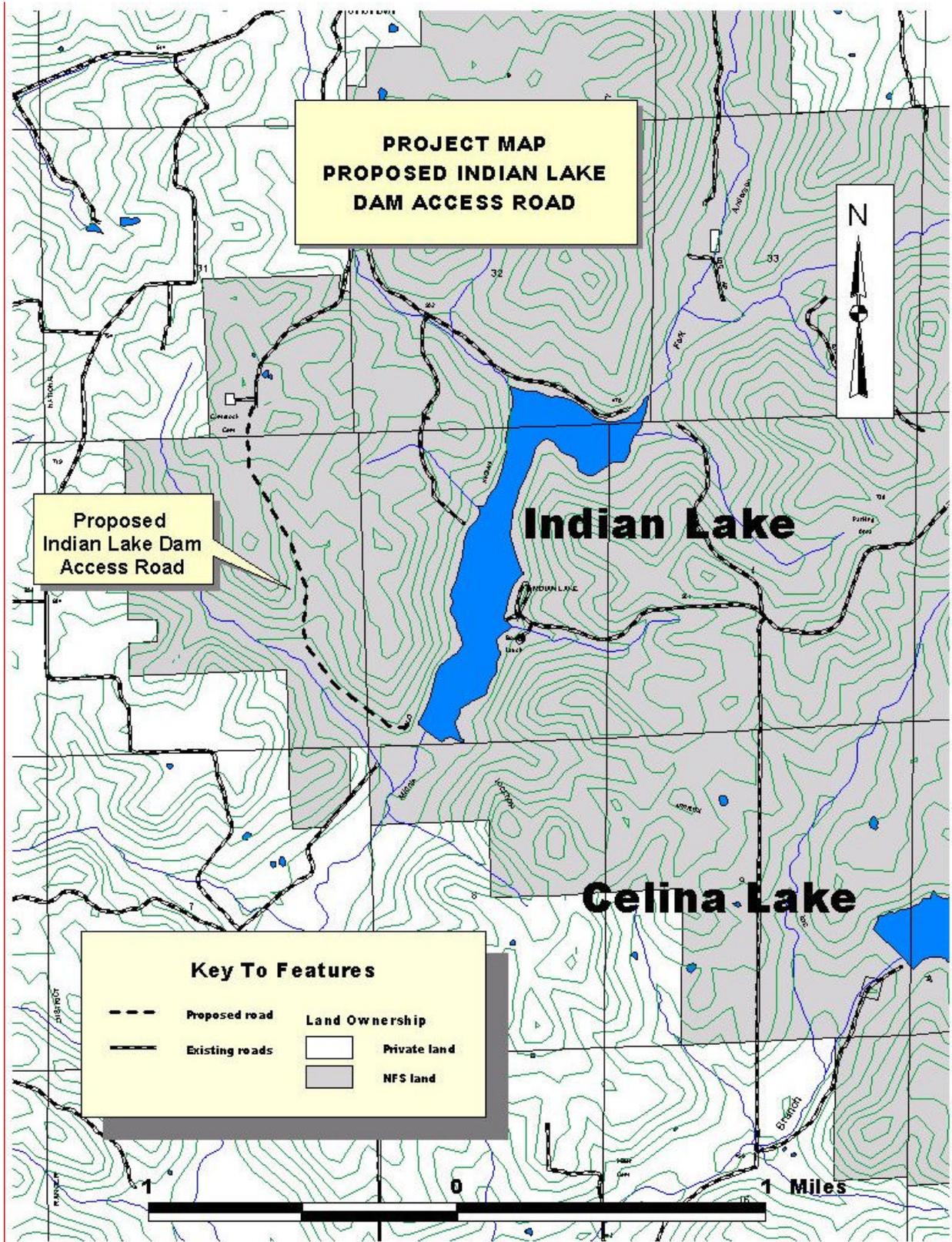


FIGURE 2: PROJECT MAP



Proposed Action

The Hoosier National Forest proposes to construct a new administrative access route into the Indian Lake dam, utilizing an existing, vacated county roadbed in combination with new construction of a low standard, low speed aggregate-surfaced road. The width of the proposed roadway will be 12 feet, with 8-foot wide turnouts installed for safety (maximum width of 20 feet). The length of the new road would be 6,500 feet or about 1.25 miles. It begins at the end of Perry County Road 39A, follows a vacated county road for 5,000 feet, and then climbs to the top of the dam with new construction for 1,500 feet on rocky 15 to 30 percent slopes.

The vacated portion of the county road is 12 to 16 feet wide, deeply eroded for 200 feet, and ditched for its entirety with old cross drains. The road has grades of 2 to 10 percent, but a 450-foot section has a 17 percent grade. The existing road parallels a drainage, crosses it in two places, and appears to have an aggregate surface. Grades on the 1,500-foot portion of new construction would be 4 to 8 percent on a rocky hillside.

Construction would include opening up the old roadway, installing cross drains, repairing the eroded portion of roadbed, and reconstructing an old road to access wildlife openings on the ridge east of the road. Burying, burning, or chipping would treat slash, along with burying or burning stumps. The Forest Service or its contractor would need to construct a turn-around at the end of the road. A gate is currently in place at the beginning of the road.

Advantages of this route consist of using an existing road, improving a linear scar that is causing erosion and sediment movement, closing the existing road that cuts through the old home site that accesses ridge top forest openings, and opening up another existing old road to the ridge top forest openings.

Disadvantages include the number of culverts needed for cross drains, including the use of a 36 – 48 inch culvert and a 60-inch culvert in two drainage crossings. About 1.5 miles of County Road 39A would also need to be reconstructed to allow the route to be used during high storm events.

The 1,500 feet of new road construction would disturb about 1.4 acres. The 5,000 feet of road reconstruction on existing old road and the obliteration of about 600 feet of the existing access would disturb about 3.1 acres. Culverts, rolling dips, and outsloping of the roadway would be installed where required for cross drainage, erosion, and sediment control. Aggregate surfacing would be installed 4 to 6 inches deep. This road would be gated and only used for administrative purposes, i.e. dam inspections and maintenance of the dam and access road (Christensen 2002).

The proposed action would allow the forest the opportunity to obliterate about 600 feet of the existing route that is under forest jurisdiction. The remainder of the existing route into Indian Lake dam is a maintained county road. There is also a section of the existing route that is non-vacated, non-maintained county road.

The proposed access route is located in Perry County in the Indian Lake/Lake Celina Recreation Area, north of Tell City and in Management Areas (M.A.) 2.8 and 7.1 (USDA FS 1991b), as shown on the map in Figure 2.

Mitigations Included in the Proposed Action

Avoid potential take of Indiana bat (*Myotis sodalis*) by not removing trees greater than five inches diameter during the period of April 15 to September 15 on national forest land (Pruitt, 2002).

Use standard mitigation measures applicable to road construction described in the *Forest Plan* Appendix K (USDA FS 1991b) to protect soil and water quality. Use natural drainage and drainage dips or culverts during layout and construction. Use temporary sediment basins during construction when necessary to retain sediment in the construction area (IDNR 1992).

The road design will meet the cross drainage standards in the HNF Road Design Guidelines (USDA FS 2001).

Other mitigations for the proposed action are discussed in the environmental effects section of this document and a list of mitigations is included in Appendix B.

Decision to be Made

The decision to be made is whether to select the proposed action alternative, another alternative that meets the established safety considerations, or the no action alternative. The Forest Supervisor will be the decision maker.

Forest Plan Background

This proposal is consistent with the *Forest Plan*. The proposal would carry out the public safety intent of the Forest Service Manual (USDA FS 1993) to provide all weather access for operation and maintenance of a high hazard dam.

The *Forest Plan* guidelines providing for a usable landbase include: "Changes to the existing road system may be made to meet short-term or long-term administrative needs, or resource management only after area-specific projects planning and appropriate consideration of public input. Changes to the existing road system will be made only after the changes are identified in an appropriately documented environmental analysis (*Forest Plan*, p. 20). "All roads and bridges will be planned, constructed, or reconstructed, and maintained to the minimum standards appropriate for their intended uses and meet environmental protection standards for nonpoint water pollution control" (*Forest Plan*, p. 2-21). The *Forest Plan* was adopted to meet the requirements of the National Forest Management Act (NFMA) of 1976.

Other Related Projects

The forest has experience with similar projects:

1. The forest recently analyzed and constructed 0.9 mile of road to the U-38 dam to repair the draw-down structure and provide safe, all-season access to the dam (USDA FS 1998b).
2. The forest recently analyzed and constructed about 2 miles of road to Celina Lake dam. The purpose of this project was to construct a safe, all-season access road for the operation and maintenance of the dam (USDA FS 1999b).

These project environmental assessments are available on-line on the Hoosier National Forest web site at www.fs.fed.us/r9/hoosier.

Other Projects in the Proposed Alternative Areas

Maintenance of Indian Lake and Celina Lake Recreation Area
Maintenance and mowing of dams
Maintenance of forest openings
Collection of miscellaneous forest products

Issues Related to the Proposed Action

Issues and management concerns related to the proposed action were identified by reviewing *Forest Plan* direction for the area and by contacting interested and affected publics, our partners, and USDA Forest Service employees.

Public comments were requested in the scoping letter sent February 22, 2002. These letters informed 241 individuals and organizations and requested their comments about the proposed action. Adjacent landowners were also notified. These letters contained a brief description of the proposed action and a map of the proposed project area. The notification included a 30-day comment period. The scoping letter was also posted on the forest website. Notice of the proposed project was published in the May 2002 issue of the Hoosier Quarterly.

Specific comments, issues, and concerns were identified from these sources. Responses were received as written letters and telephone calls. The groups or individuals that responded are listed in Appendix A. The interdisciplinary team evaluated each comment to determine how it should be addressed. The results of the evaluation are displayed in Appendix A. Four responses to scoping were received through letters or phone calls.

Two major issues were identified by the interdisciplinary team and served as a basis for evaluating the alternatives including the proposed action. These issues were also used to assess environmental consequences.

Soil and water resources were not considered issues because they are adequately protected by standard mitigation measures.

The soil scientist has observed the effectiveness of these mitigation measures during and following the construction of an access road to the U-38 Lake dam and Celina Lake dam on

similar soils and landscapes on the Tell City Ranger District. The same road design standards and construction techniques would be used. The purpose of these projects was to construct safe, all-season access roads for the operation and maintenance of the dams. The monitoring report for the U-38 Lake dam access states that impacts to soil and water resources were minimal because of the successful implementation and mitigation measures and design guidelines. This road was approximately 1 mile long and followed a ridge. It had 10 culverts for cross drainage and one drainage dip. Five of the culverts had some soil erosion at the inlets but it settled out within 5 to 21 feet of the culvert (Merchant 2002a).

The monitoring report for Celina Lake dam states that some soil erosion had occurred as the seed and mulch was placed during a dry spell. The seed germinated and then died. The soil slumped at the cut bank. The soil scientist recommended that the slump area be reshaped and protected with an erosion control blanket embedded with seed. In addition, several of the culverts had erosion at their inlets. He recommended that erosion control blankets be placed at the inlets of these culverts (Merchant 2001).

Issue 1: Safety

Concern was expressed that the existing access route to the high hazard dam occurs in the drainage below the dam. There is a need for a safe access route for dam operation and maintenance upstream of the dam, rather than on the existing downstream route, to meet the public safety intent of the Forest Service Manual (USDA FS 1993). This issue is addressed in the effects section of this document.

Issue 2: Cost

This issue is an internal issue used for evaluation of the alternatives.

Alternatives

Process used to develop alternatives

On May 1, 2002 the interdisciplinary (ID) team met and discussed issues and alternatives for the Indian Lake Dam Access Road Project. The team developed four alternatives that respond to the issues. Alternative A is the proposed action. Alternative B is the ridge top access route. Alternative C would upgrade the existing route. Alternative D is the no action alternative.

Table 1 displays the engineering characteristics and costs by each alternative.

TABLE 1. ENGINEERING CHARACTERISTICS OF ALTERNATIVES				
Characteristics	Alternative A	Alternative B	Alternative C	Alternative D
Total length	6,500 feet	6,500 feet	2,200 feet	
Existing road length	5,000 feet	4,000 feet	0 feet	
New const. length	1,500 feet	2,500 feet	2,200 feet	
Obliterate existing access	600 feet	600 feet		
Project area disturbance	4.5 acres	4.8 acres	2.0 acres	
18"-24" culverts	Yes	Yes	Yes	
25"-48" culverts	Yes			
49"-72" culverts	Yes		Yes	
Major structure	No	No	No	
2-6% grades	Yes	Yes	Yes	
7-10% grades	Yes	Yes	Yes	
>10% grades	Yes (450 feet)			
Old home site (number)	Yes (2)	Yes (2)		
Wildlife opening (number)	No	Yes (4)	Yes (1)	
FS road cost	\$116,000	\$ 79,000	\$121,000	
County road reconstruction cost	\$117,000	\$117,000	\$ 64,000	
Estimated Total Cost	\$233,000	\$196,000	\$185,000	\$0.00

Alternative A (Proposed Action)

Alternative A is explained in detail in the purpose and need section of this EA.

Alternative B (Ridge Top Access Route)

This alternative is the route that was proposed in the scoping letter. This route is approximately 6,500 feet in length (Table 1). The route begins at the end of Perry County Road 39A and follows an old ridge-top, forest openings access road for 4,000 feet. At the end of the existing road, the route drops to the dam on 5 to 25 percent slopes for 2,500 feet with approximately 500 feet on what appears to be an old skid road, some of which is deeply eroded, and approximately

1,000 feet on extremely rocky hillside. Grades on the proposed road will run 2 to 10 percent with no major drainage crossings. The ridge top portion runs on the edge of three forest openings and crosses a fourth opening. This route crosses through the middle of an old home site at the beginning of the road and runs adjacent to another old home site between the third and fourth forest opening. No major construction problems are anticipated with this route. Work would consist of constructing a 12-foot wide aggregate road with some side ditching and 18-inch and 24-inch culverts to be installed. Minor earthwork would be encountered, slash to be burned, buried or chipped, stumps to be burned or buried. A turnaround would be constructed near the end of the road. An existing gate is located at the beginning of the route.

About 1.5 miles of County Road 39A would also need to be reconstructed with this proposed route. Work would consist of replacing existing culverts, installing additional culvert cross drains, raising the grade of the road from milepost 0.5 for approximately 0.25 miles, as it is adjacent to a drainage that floods the road during high intensity storms, and placing aggregate on about 0.75 miles of the road.

Benefits to using this route include using an existing road and skid trail, no major drainage crossings and little earthwork.

Disadvantages include the crossing through the middle of an old home site, running on the edge or across forest openings, rocky hillside on new construction, and new construction on 2500 feet of the route. About 1.5 miles of County Road 39A would also need to be reconstructed to allow the route to be used during high storm events (Christensen 2002).

The 2,500 feet of new road construction will disturb about 2.3 acres; 4000 feet of road reconstruction on existing old road and obliteration of about 600 feet of the existing access will disturb about 2.5 acres.

Alternative C (Upgrade Existing Route)

This route is approximately 2,200 feet in length (Table 1). It would continue from the end of County Road 39B, cross an unnamed creek requiring a bridge or large culvert, cross about 1,000 feet in the floodplain, possibly using a portion of the old county road, and then climb to the dam on 15 to 30 percent slopes. Grades on the 1,000-foot portion of new construction run 4 to 8 percent on a rocky hillside. Slash would be treated by burying, burning, or chipping with stumps buried or burned. A turnaround would be constructed near the end of the road. An existing gate is located at the beginning of the road. An old home site may have been located in the floodplain portion of this road.

If this route is used, 0.70 miles of County Road 39B would also have to be reconstructed. Reconstruction work would consist of replacing a 96-inch culvert, replacing existing 18-inch culverts, raising the roadbed across the open land, and placing 4 inches of aggregate. This county road is below the dam and crosses low land used for farming. If the dam failed, this road could be flooded.

Benefits of this route are the opportunity to improve the county road and it has the least amount of ground disturbance.

Disadvantages of upgrading the existing route are that the county road is below the dam, possibly endangering responding crew and equipment, flooding the road in a catastrophic event, and the construction of a bridge or large culvert across the no name creek (Christensen 2002). Continued use of the existing access route would not meet the public safety intent of the Forest Service Manual (USDA FS 1993) of providing a safe access route upstream of the dam.

The 2,200 feet of new road construction will disturb about 2.0 acres.

Alternative D (No Action or Existing Condition)

This alternative does not implement the proposed dam access road project (Table 1). It does not impact the Indiana bat by avoiding cutting trees or directly impacting habitat. It does not address the issue of public safety to provide a safe access route for dam repair and maintenance upstream of the dam. This alternative includes continuing to use the existing access route that occurs in the drainage below the dam. Continued use of the existing access route would not meet the public safety intent of the Forest Service Manual (USDA FS 1993) of providing a safe access route upstream of the dam.

Alternatives not considered in detail

One alternative considered is approximately 9,300 feet in length. It follows existing roads for approximately 5,750 feet. It would then consist of 3,550 feet of new construction terminating at the dam. This alternative was not taken forward because of the length of new construction involved, the construction of a bridge, replacement of large culvert, numerous culvert installations, crossing old home site/forest opening, rocky new construction and a portion of this route is also used for the Two Lakes Loop Trail.

Another alternative considered is approximately 10,000 feet in length. It follows existing roads for approximately 6,500 feet. From the end of the existing road the route continues along the Two Lakes Loop Trail for 3,500 feet terminating at the dam. This alternative was not taken forward because of the length of new construction involved, the construction of a bridge, replacement of large a culvert, numerous culvert installations, crossing old home site/wildlife opening, rocky new construction and 7,500 feet of this alternative is also used for the Two Lakes Loop Trail.

A third alternative route was considered but is not viable as it is on the spillway side of the dam. The route is 2,200 feet in length taking off existing FS road in the Indian Lake Recreation Area and then would follow benches on the hillside above Indian Lake terminating at the spillway for the dam. This alternative was not carried forward because it is on the spillway side of the dam and in a storm event it may be difficult to work on the dam if water is flowing over the grassed spillway.

Environmental Effects

This section presents the environmental effects of implementing each alternative. The effects are presented in response to the issues and concerns identified earlier. Knowing the expected environmental consequences of proposed activities gives the decision maker a basis for selecting which actions to implement. The need for an environmental impact statement is based on what environmental effects are expected from the proposed actions. The following effects are discussed because they are related to the major issue of dam safety. The effects on plant and animal habitat, including the effects to threatened and endangered species, Regional Forester sensitive species, forest species of concern, and management indicator species, are shown to document compliance with the Endangered Species Act and the *Forest Plan*. The effects on public safety require responsibility for a safe access route for dam operation and maintenance upstream of the dam. The economic effects are shown because we have a responsibility to be cost effective. The effects on heritage resources are shown to document compliance with the National Historic Preservation Act and other acts that protect heritage resources. The effects on soil and water resources are not shown because they will be adequately protected by standard mitigation measures required in the design for any forest development and are described in Appendix K of the *Forest Plan* (USDA FS 1991b).

Issue 1: Safety

The existing access route to the high hazard dam is an abandoned old road that occurs in an unsafe location in the drainage below the dam. There is a need for a safe access route for dam operation and maintenance upstream of the dam rather than on the existing downstream route, to meet the public safety intent of the Forest Service Manual (USDA FS 1993).

Affected Environment

Indian Lake dam was constructed in 1964 for flood control on the Middle Fork of the Anderson River in Perry County and is classified as a high hazard dam. A high hazard dam is one that was built in areas where failure would likely result in loss of human life or excessive economic loss (USDA FS 1993). Development downstream, combined with the presence of two high hazard dams (Lake Celina dam Structure 5) and (Bristow dam - Structure 7) downstream of Indian Lake dam (Structure 6), were identified in the 1985 Report Evaluation of Emergency Potential for Emergency Action Plan as justification for rating Indian Lake dam as high hazard (USDA FS 1985).

Indian Lake dam is 68 feet high, 830 feet long and impounds 1,708 acre-feet of water at recreation pool level. The maximum storage before overtopping (flood control pool) is 5,658 acre-feet.

During large rainfall events, when dams are most vulnerable, the existing road could be washed out putting responding personnel in danger. All-season access, upstream of the dam, is essential to act quickly if there are signs of partial or full failure of the dam.

Effects of Proposed Action (Alternative A) on Safety

During large rainfall events monitoring and maintenance of the dam could be important to avoid partial or full failure of the dam structure. Relocating the existing access route from the drainage below the dam to a route upstream of the dam will provide a safer, all-weather access route for dam operation and maintenance. This will increase the safety of maintenance personnel and of those living in the area below the dam. Safety and health is the highest priority on any USDA Forest Service job (regular or emergency). This alternative implements USDA Forest Service policy.

Direct and Indirect Effects on Safety

This alternative directly affects the safety of maintenance personnel and of those living in the area below the dam. Those effects are discussed below in cumulative effects.

Cumulative Effects

The area of consideration for cumulative effects includes the land that would be flooded to the point of causing economic loss to agricultural crops, loss of habitable structures, or loss of human life. In the past, the private land below the Indian Lake dam was owned and occupied by a few landowners. This land was used to grow agricultural crops. If dam failure occurred property damage would have been limited to those agricultural crops that would have been destroyed or damaged by flooding. The existing access for dam operation and maintenance was felt to be adequate.

Recent past events and the current situation has caused the Forest to reevaluate the issue of dam access. The land below the dam, in some cases, has been sold as smaller tracts on which landowners have built houses for their families. It is anticipated that this will continue with more residents moving to the area below Indian Lake dam.

The cumulative effects of the proposed action will be the increased safety of those living in the area below the dam, and of maintenance personnel during large rainfall events when monitoring or maintenance is needed.

Effects of Ridge Top Access Route (Alternative B) on Safety

The effects of this alternative on safety are similar to proposed action (Alternative A).

Direct and Indirect Effects on Safety

The direct and indirect effects of this alternative on safety are similar to the proposed action (Alternative A).

Cumulative Effects on Safety

The cumulative effects of ridge top access route (Alternative B) are essentially the same as the proposed action (Alternative A).

Effects of Upgrade Existing Route (Alternative C) on Safety

Upgrading the existing route adjacent to the drainage below the dam would not alleviate the danger for the safety of personnel responsible for the operation and maintenance of the Indian Lake dam or of those living in the area below the dam. Under this alternative access to the dam would not be possible during high water events when structure integrity or human safety may be in question.

Direct and Indirect Effects on Safety

The direct and indirect effects of this alternative on safety are similar to the no action or existing condition (Alternative D).

Cumulative Effects on Safety

The cumulative effects of upgrade existing route (Alternative C) are essentially the same as the no action or existing condition (Alternative D).

Effects of No Action or Existing Condition (Alternative D) on Safety

Not providing an access route upstream of the dam could endanger the safety of personnel responsible for the operation and maintenance of the Indian Lake dam and of those living in the area below the dam. Under this alternative the Forest would not meet the public safety intent of Forest Service Manual (USDA FS 1993) to provide all weather access for operation and maintenance of a high hazard dam.

Direct and Indirect Effects on Safety

This alternative directly affects the safety of maintenance personnel and of those living in the area below the dam. Those effects are discussed below in cumulative effects.

Cumulative Effects

The cumulative effects of the no action alternative would be the continued threat to the safety or loss of human life of maintenance personnel and to those living below the dam.

Issue 2: Cost

Affected Environment

In the four alternatives the economic differences are incremental, so the analysis included only variable costs. Fixed costs such as general administration and program management do not change among alternatives, and therefore, they are not included. Costs included in this analysis

are only those incurred by the USDA Forest Service. Estimates are based on historical costs for similar projects on the Hoosier National Forest.

Effects of Alternatives

The engineering costs of each alternative were estimated by the Forest Civil Engineering Technician based on his experience on similar projects on the Hoosier National Forest. Table 1 displays the costs of each alternative.

Plants and Wildlife

Affected Environment

The proposed route runs through approximately 6,500 feet of dry-mesic forest dominated by white oak, black oak, beech and sugar maple, and white pine plantations. About 5,000 feet of this is in an existing, actively eroding old roadbed (Olson 2002a). Approximately 1500 feet will be new construction on a rocky 15 to 30 percent slope.

The proposed action will disturb about 4.5 acres and result in the removal of about 500 trees. The majority of the disturbance and tree removal will occur on 1500 feet that will require new construction.

Threatened and Endangered Species

All National Forests review projects for possible effects on endangered, threatened, proposed, or sensitive species to meet the requirements of Forest Service Manual 2672.4 (USDA FS 1990a). The HNF entered into formal consultation with the USDI Fish and Wildlife Service under section 7 of the Endangered Species Act for continued *Forest Plan* implementation on April 5, 2000. The forest received a Biological Opinion on July 31, 2001 (Pruitt 2001 and USDI FWS 2001). The USDI Fish and Wildlife Service identified four federally listed species as having part of their range on the HNF. These species are the threatened bald eagle (*Haliaeetus leucocephalus*), the endangered fanshell mussel (*Cyprogenia stegaria*), the endangered gray bat (*Myotis grisescens*), and the endangered Indiana bat. There is no critical habitat (50 CFR 402.02) for these species in the project area.

The closest known Indiana bat hibernaculum is Wyandotte Cave approximately 20 miles from the project area in Crawford County. This cave is listed as critical habitat for the species. There are no caves known in the project area. There is no limestone bedrock in the project area. The project will have no effect on Indiana bat hibernacula because none are known within 1.5 miles of the project area. No maternity colonies are known from the area. The closest area with evidence of reproductive bats is in Bartholomew County, approximately 60 miles from the project area. Removal of standing trees could affect Indiana bat in two ways. First, removing trees during roosting season could potentially directly harm Indiana bats roosting in those trees. Second, removing them will reduce roosting habitat within the project area. Indiana bats are known to move from one roost tree to another if the previously used tree is no longer useable (Gardner *et al.* 1991). The proposed action should not significantly disrupt normal behavioral

patterns. The project area represents only a very small portion of the available foraging habitat for Indiana bat on National Forest System (NFS) lands in the area. Therefore, the proposed action will have minimal effect on foraging habitat (Olson 2002a).

The closest known gray bat hibernaculum is in Breckenridge County, Kentucky. There are two bald eagle nest sites at Patoka Lake (Castrale and Ferchak 2001). These are 15 miles from the project area. The only site of fanshell mussels on the forest is restricted to the main stem of the East Fork of the White River. Based on this information, and the lack of potential habitat, we anticipate that the proposed action would have no effect on bald eagle, gray bat, or the eastern fanshell mussel (Olson 2002a).

Regional Forester Sensitive Species

The February 29, 2000 update of the Regional Forester sensitive species (RFSS) list documents 78 sensitive species as occurring on the Hoosier National Forest. The revised list of RFSS did not carry forward 19 species on the March 4, 1994 listing. We evaluated the effects of the proposed action on species from both of these lists (Olson 2002a).

A review of forest records and the Indiana heritage database reveals no sightings of RFSS species within or immediately adjacent to the proposed treatment areas of the project (IDNR 2002; Hedge *et al.* 2002). Species with the most likely potential habitat within or in the immediate vicinity of the project area include bobcat (*Lynx rufus*), evening bat (*Nycticeius humeralis*), cerulean warbler (*Dendroica cerulea*), West Virginia white (*Pieris virginianensis*), blue monkshood (*Aconitum uncinatum*), large yellow lady's-slipper (*Cypripedium pubescens*), butternut (*Juglans cinerea*), Illinois wood sorrel (*Oxalis illinoensis*), Yadkin panic-grass (*Panicum yadkinense*), large-leaved phlox (*Phlox amplifolia*), rock skullcap (*Scutellaria saxatilis*), and Eastern featherbells (*Stenanthium gramineum*). We determined there would be no impact on any RFSS species or their habitat from any of the alternatives (Olson 2002a).

Forest Species of Concern

The February 29, 2000 revision of the RFSS list incorporated many of the Forest species of concern (FSOC) listed by the *Forest Plan*. We addressed these species (Olson 2002b).

An analysis of FSOC species for the Indian Lake Dam Access Road Project determined the following species have potential habitat within the project area (Olson 2002b). These dry-mesic forest species include umbrella magnolia (*Magnolia tripetala*), Virginia saxifrage (*Saxifraga virginianensis*), Illinois wood-sorrel (*Oxalis illinoensis*), Allegheny spruce (*Pachysandra procumbens*), black-and-white warbler (*Mniotilta varia*), broad-winged hawk (*Buteo platypterus*), hooded warbler (*Wilsonia citrina*), and red-shouldered hawk (*Buteo lineatus*). None of these species has documented occurrences within or in the immediate vicinity of the project area. We determined there would be no impacts to these species from any of the alternatives (Olson 2002b).

Management Indicator Species

Species believed to be vulnerable to population decline and species most likely to provide an indication of effects of management actions through population change make up the management

indicator species (MIS) list in the *Forest Plan*, p. C-13. Monitoring of these species will provide data on population trends under a variety of habitat conditions found on the forest (*Forest Plan*, C-13). Recently, in the Forest-wide Openings Maintenance EA, we documented the trends of all MIS species forestwide. In this analysis, we discovered no trends that caused concern (USDA FS 1999a). An analysis of MIS species for the Indian Lake Dam Access Road Project determined the following species have potential habitat within the project area (Olson 2002b). These species are gray squirrel (*Sciurus carolinensis*), pileated woodpecker (*Dryocopus pileatus*), and wild turkey (*Meleagris gallopavo*). All of these species have been documented within or in the immediate vicinity of the project area. We determined there would be no impact to these species from any of the alternatives (Olson 2002b).

Effects of Proposed Action (Alternative A)

The maximum area that will be impacted will be about 4.5 acres (Table 1). Tree removal will mostly occur on 1.4 acres of new construction. There will be some trees that will have to be removed along the 5000 feet of existing old road. Removal of ground vegetation will occur on the 1500-foot new construction portion.

Direct and Indirect Effects

Indiana bats roost in trees and snags having exfoliating bark. No trees or snags >5 inches will be cut within the proposed project between 15 April and 15 September without further consultation with the USDI Fish and Wildlife Service (Pruitt 2002). Tree removal would take place between September 15 and April 15. Some of the trees that will be removed include those with exfoliating bark. However, we anticipate no direct effects on Indiana bat because the removal of these trees would occur outside of the activity season of the bat when they are hibernating. The project area represents only a very small portion of the available foraging habitat for Indiana bat on National Forest System lands in the area. This project will have no additional effects on Indiana bat beyond those identified in the Forest's 5 April 2000 Programmatic Biological Assessment and the 31 July 2001 USDI Fish and Wildlife Service Biological Opinion. The USDI Fish and Wildlife Service concurred with this conclusion during consultation, June 2002.

Cumulative Effects

Past activities on private land which have probably affected Indiana bat in the lower Midwest include conversion of riparian foraging and roosting areas to agricultural or residential uses, timber harvest of foraging and roosting areas, and disturbance to hibernacula through flooding, ceiling collapse, or by humans (Brady *et al.* 1983). Past activities on NFS land that may have affected Indiana bats includes timber harvest.

Present or reasonably foreseeable future activities on private land which may have an impact on this species include construction or use of roads, continued agricultural use of most of the riparian areas, timber harvest, and activities associated with nearby residences.

Present or reasonably foreseeable future activities on NFS land include the conversion of non-native pines in the area to native hardwoods either naturally or through vegetation management such as timber harvest. Native hardwood stands typically provide better foraging and roosting habitat than pine plantations, so this conversion would be beneficial for Indiana bat.

In each current project on the forest, biologist assessed the effects to Indiana bat. It was determined that there would be no effect or that the effects to Indiana bat were insignificant or discountable. Analyses for the Indian Lake Dam Access Road project determined that the proposed action would not affect the Indiana bat (Olson 2002a).

Because none of the above RFSS, FSOC, or MIS species that inhabit dry-mesic forests have documented occurrences within or in the immediate vicinity of the proposed treatment areas of the project and the proposed project does not affect habitat quality for these species, we anticipate that the proposed project would contribute minimal cumulative effects to these species or their habitat.

The Hoosier National Forest manages over 199,000 acres intermixed with lands owned by many other parties. Since dry-mesic forests occur at scattered locations throughout the forest on private and NFS lands, land use decisions made by other owners affect dry-mesic forests as much as activities carried out on the national forest (Olson 2002a).

Effects of Ridge Top Access Route (Alternative B)

The maximum area that will be impacted will be about 4.8 acres (Table 1). Tree removal will mostly occur on 2.3 acres of new construction. There will be some trees that will have to be removed along the 4000 feet of existing old road. Removal of ground vegetation will occur on the 2500-foot new construction portion.

Direct and Indirect Effects

We anticipate the same overall direct and indirect effects as described above in the proposed action, except this alternative would affect an additional 0.9 acres.

Cumulative Effects

We anticipate the same overall cumulative effects as described above in the proposed action, except this alternative would affect an additional 0.9 acres.

Effects of Upgrade Existing Route (Alternative C)

The maximum area that will be impacted will be about 2.0 acres (Table 1). Tree removal will occur on portions of the 2.0 acres of new construction. Removal of ground vegetation will occur on portions of the 2200-foot new construction area.

Direct, indirect and cumulative effects

We anticipate the same overall direct, indirect, and cumulative effects as described above in Alternative A, except this alternative would affect less potential habitat for all species.

Effects of No Action or Existing Condition (Alternative D)

This alternative does not implement the proposal. There would be no change from existing conditions. Therefore, we anticipate that Alternative D would have no effect on all threatened, endangered, sensitive, forest species of concern, and management indicator species or their habitat.

Heritage Resources

The proposed road to provide access to the Indian Lake dam is to be partially located on an existing, vacated county road in combination with 1500 feet of new road construction.

The site was investigated to identify all historic and prehistoric resources that may be eligible for inclusion to the National Register of Historic Places (NRHP) in compliance with the National Preservation Act of 1966, as amended (16U.S.C. § 470f) and 36 CFR Part 800. The forest archaeologist concluded that no historic properties were located within the project area, the historic farmstead located adjacent to the existing county road is not eligible for listing on the NHRP, and that no additional site work is recommended (Krieger 2002a). The State Historic Preservation Officer concurred with the findings of “no historic properties affected” (Goss 2002).

Forest Service Participants

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Appendix A

Public Comments from Initial Scoping

The ID team categorized each response received during the scoping process to identify specific comments, issues, and concerns. These comments were identified and sorted. Following each comment is a summary of how the comment was addressed in the analysis.

In the following pages, we group comments by issues. There is also a "general comments, opportunities and alternatives for consideration" heading which lists non-specific issue comments. "C" indicates a comment. "R" indicates the USDA Forest Service response. Direct quotes are within quotation marks. Paraphrased comments are without quotation marks. In parentheses we list the comment source code (response number - comment number). When we list several comment source codes the quote is from the first comment source code, however, the ID team believes the quote represents the additional comments.

Approximately 241 groups, individuals, and neighbors were contacted regarding the proposed project. Notice of the proposed project was published in the May 2002 issue of the Hoosier Quarterly and was posted on the forest website. The following lists those who responded during the public scoping process. A complete listing of the individuals contacted can be found in the project file.

Name	Organization	Response #
Kemper, Jim		4
Mittenthal, Suzanne	Hoosier Hikers Council	1
Ritter, Carroll		2
Whitaker, John		3

General Comments, Indian Lake Dam Access Road

G-1 In support of the road project

C. One respondent stated "...sounds like this needs to be done. Proceed." (03)

R. Comment acknowledged. Thank you.

G-2 Request for information

C. One of the commenters requested information concerning downstream structures, information about the dam and emergency plans. (02)

R. This information was sent to commenter (Merchant, 2002b).

C. "Please send cost estimate for the project." (02)

R. Refer to the cost estimates (Table 1) in the environmental assessment under Process Used to Develop Alternatives.

Resource Concerns, Indian Lake Dam Access Road

R-1. Concern about road location

C. “I hope road will not be visible from Pete’s Cave.” (04)

R. The proposed road is about 1/4 mile from “Pete’s Cave”. The proposed road will not be visible from “Pete’s Cave” because of existing vegetation and the location of the cave in the terrain (Krieger 2002b).

C. “The proposed road is lengthy and would create a major new source of access for unauthorized vehicles from the north. There is already a problem on abandoned old roads near the lake, both to the north and to the east of the lake.” (01)

R. There are ATV’s accessing the area. No violations have been issued in this area. Law enforcement is aware of the illegal use. The proposed road would not create a new source for illegal access because this use is already occurring.

C. “...access to the companion Celina Lake is below the dam. Why is such access o.k. there, but not at Indian Lake?” (01)

R. A road was constructed during the summer of 2000 that accesses Celina Lake upstream of the dam. Refer to Other Related Projects of the environmental assessment.

C. “Such a road would also be one more element cutting up the forest into parcels, introducing weeds, light, and bird predators, such as cowbirds.” (01)

R. The proposed road construction is through mesic forest. Because the majority of the route is in an existing old roadbed, there will be very little habitat fragmentation. This linear feature will not provide additional habitat for brown-headed cowbirds (*Molothrus ater*) because the species is already present in the area and the edge of the road will not be maintained as short, mown grasses where the cowbirds typically feed. There may be additional light in some of the area for a period of time as the disturbed part of the route revegetates. Non-native invasive plants will be kept to a minimum by the use of the Forest’s preferred seeding mixture for stabilizing sites. Although some non-native species are included, they are not aggressive species that would be likely to invade the natural communities in the vicinity (Olson 2002a).

C. “This project would diminish the recreation experience for forest users” (01)

R. Formal visitor-use studies have not been conducted in this area. Casual observation by Forest Service staff indicates visitors hunting for deer and mushrooms, and other dispersed recreational use in the area. The proposed road is likely to enhance recreational use because it does provide a means of access to the backcountry areas of the forest. An example of this is the newly constructed Celina Lake Dam access road. Forest visitors currently use this road as an

access to Celina Lake and the Two Lakes Loop Trail. There have been no complaints received that the Celina Lake dam road has been a detriment to the recreational experience (Myers 2002).

C. “This project would ... negatively impact the wildlife habitat.” (01).

R. Potential wildlife impacts are discussed under Plants and Animal Wildlife.

C. “You state as one reason for replacement that the existing access is an old road that “receives little or no maintenance. This is not a defect in the road, simply a condition needing action.” (01).

R. We agree. This is not the main reason for the proposed road. The USDA Forest Service addresses this concern in Issues Related to the Proposed Action in Environmental Effects of the environmental assessment.

C. “...project seems financially wasteful and environmentally damaging.” (01)

R. The cost of the proposed action will construct a minimum standard road that will meet the safety needs for any required dam repair during high water events. Utilizing the old abandoned county road will fix an existing problem and utilize an existing corridor. Mitigation measures implemented will protect the resources.

C. “Has Environmental Assessment of the alternative routes been carried out?” (01)

R. This document is the Environmental Assessment of alternative routes.

C. “I have a concern about the number of drainage structures (culverts) when the road begins to angle down on the side slope.” (04)

R. The proposed road in the scoping letter is not the proposed action in this EA. The proposed action will utilize an old vacated county road. Refer to the discussion in the Proposed Action section.

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Appendix B

Mitigation Measures

Mitigation measures created in response to issues and concerns associated with the proposed action and alternatives are contained in this appendix.

Forest Plan guidance for mitigating potential adverse effects of management activities applies to all alternatives. In the *Forest Plan* Management Area 2.8 guidance is noted on pages 2-31 through 2-35 and Management Area 7.1 guidance is noted on pages 2-45 through 2-48. Forestwide guidance applicable to all NFS lands are found in *Forest Plan* Appendix K.

Mitigation A – To avoid potential take of Indiana bat, trees will be removed during the winter (September 15 to April 15).

Mitigation B – Standard mitigation measures to protect soil and water resources applicable to road reconstruction, *Forest Plan* Appendix K, would be used to protect the soil and water resources. Natural drainage and drainage dips would be used during layout and construction. In addition, temporary sediment basins will be used during the construction phase when deemed necessary to retain sediment in the construction area (IDNR 1992). Temporary diversions and sediment basins will be used during the construction phase when deemed necessary to retain sediment in the construction area (IDNR 1992). Forest road design guidelines (USDA FS 2001) should be used when setting design standards in road contracts.

Mitigation C – Management of streamside management zones would occur in accordance with direction in the *Forest Plan*, Appendix J.