Biological Opinion and Incidental Take Statement for the Indiana Bat (*Myotis sodalis*) for the Aurora Animal Care Center Project in Portage County, Ohio

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Prepared by:

U.S. Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, OH 43230

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INTRODUCTION

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion based on our review of the U.S. Army Corps of Engineers (Corps) proposed issuance of a Nationwide Permit under Section 404 of the Clean Water Act to the Aurora Animal Care Center (AACC), and the effects on the Indiana bat (*Myotis sodalis*; IBAT) in accordance with section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The Corps' application number for the project is #2018-00150. The Corps' request for formal consultation was received on July 13, 2018.

This BO is based on information provided in the Biological Assessment (BA). A complete administrative record of this consultation is on file at the Service's Ohio Field Office (OHFO).

CONSULTATION HISTORY

The Corps determined that the AACC project (project) is likely to adversely affect the IBAT and submitted a request for initiation of formal consultation to the Service on July 11, 2018. In a July 16, 2018 response letter, the Service concurred with the Corps' determination, and agreed that the initiation package was complete in accordance with 50 CFR §402.14, and that the timeframe for formal consultation had begun effective July 11, 2018.

In addition to the Indiana bat, the project is in the range of the federally listed endangered Mitchell's satyr (*Neonympha mitchellii mitchellii*) and threatened northern long-eared bat (*Myotis septentrionalis*), eastern masssauga (*Sistrurus catenatus*), and northern monkshood (*Aconitum noveboracense*). In the BA, the Corps determined that the proposed project will have "no effect" on the Mitchell's satyr, eastern massasauga, and northern monkshood due to the lack of habitat and/or presence of these species in the action area. Therefore, consultation on the Mitchell's satyr, eastern massasauga, and northern monkshood is not required. The northern long-eared bat is confirmed to be present in the action area during the spring, summer maternity season, and fall swarming period. However, there are no known northern long-eared bat maternity roost trees within 150 feet of the project area and no known hibernacula within 0.25 mile of the project area. On June 8, 2018, the Corps submitted the Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form to the Service to fulfill their section 7 consultation responsibilities for this species. The consultation was concluded for the northern long-eared bat on July 8, 2018, 30 days following the Service's receipt of the streamlined consultation form. A summary of the consultation history is provided in Table 1.

This biological opinion only analyzes the effects of the project on the Indiana bat

Table 1. Consultation History

Date	Event
May 14, 2018	OHFO receives request (dated May 10, 2018) from Corps for consultation for the AACC Project.
May 14, 2018	OHFO receives technical assistance request letter from Professional Service Industries, Inc. for the AACC Project.
May 15, 2018	OHFO sends email to Corps recommending seasonal tree clearing between November 15 and March 15 to avoid adverse effects to the Indiana bat
May 15, 2018	OHFO and Corps phone call to discuss project
May 23, 2018	OHFO phone call with representative for the City of Akron to clarify the scope of the project to include an interrelated water line project
June 8, 2018	OHFO receives Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form from the Corps concluding consultation on the northern long-eared bat for the proposed project
June 18, 2018	OHFO receives Draft Biological Assessment from Tragus Environmental Consulting, Inc. for review and comment
June 22, 2018	OHFO sends comments on Draft Biological Assessment to Tragus Environmental Consulting, Inc.
July 8, 2018	Consultation on the northern long-eared bat is concluded (30 days following OHFO's receipt of the Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form)
July 11, 2018	Corps submits Final Biological Assessment and cover letter requesting initiation of formal consultation
July 13, 2018	OHFO receives Corps' formal consultation initiation package
July 16, 2018	OHFO sends letter to Corps acknowledging receipt of complete initiation package. Formal consultation initiated July 11, 2018
July 27, 2018	OHFO sends draft BO to Corps for review
August 1, 2018	Corps sends comments on draft BO to OHFO
August 3, 2018	OHFO issues final BO to Corps concluding formal consultation

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The federal action evaluated in this biological opinion (BO) is the issuance of a Nationwide Permit (NWP) #39 under Section 404 of the Clean Water Act by the Corps to facilitate the construction of the AACC Project. The project includes the construction of a new animal care center to provide animal care and boarding services to clients with domesticated pets in the City of Aurora and surrounding areas. The project will require temporary and permanent impacts to a jurisdictional wetland.

The Corps is responsible for issuance of permits to discharge dredged or fill material into waters of the U.S., including wetlands, under Section 404 of the Clean Water Act (33 USC § 1344; 33 CFR 320-332). AACC has applied for a 404 permit to fill a wetland for the construction of the project. The Corps permit area for this jurisdictional water is limited to the area of direct impacts, as a result of fill material being placed into waters of the U.S. and the immediate adjacent uplands directly affected by authorizing the fill material. For the project, the jurisdiction of the Corps permit includes temporary impacts to 75 ft^2 and permanent filling of 0.04 acre of a 0.08 acre wetland and the immediate adjacent uplands. The Corps has stated that their statutory authority is limited to the permit areas of NWP actions.

The Service is issuing this BO pursuant to section 7 of the ESA. Direct and indirect effects of the federal action (issuance of a NWP) and the interrelated or interdependent activities are analyzed to ensure they are not likely to jeopardize the continued existence of federally listed or proposed endangered or threatened species. Indirect effects of the federal action include, "…effects that are caused by or result from the action, are later in time but are reasonably certain to occur…" Interdependent actions have no independent utility apart from the proposed action, and interrelated actions are part of a larger action and depend on the larger action for their justification (50 CFR §402.02). Issuance of NWPs will result in the construction, operation, and maintenance of the AACC Project. Therefore, the focus of this BO is the effects of the project, including all construction, operation, and maintenance activities associated therewith, regardless of permit jurisdiction or land ownership. The Corps will be responsible for effects from tree clearing and construction activities of the facility and associated features, and the AACC will be responsible for any effects associated with operation and maintenance of the facility.

The project is located in the City of Aurora in Portage County, Ohio (Figure 1). AACC is proposing to construct a 9,380 square-foot single story animal care clinic and boarding facility, a 44-space parking lot, and a 12,000 (0.25-acre) square-foot stormwater detention pond. The building structure will be a wood framed building with an asphalt shingle roof. The exterior elevations will be composed of a combination of hardiboard paneling & Pennsylvania ledge stone. This site will extend to the existing Aurora Commons Circle and will have an entrance off the existing Maple Lane Road. The project will require the extension of a water line from State Route 43 (S. Aurora Road) to the project site. The line will parallel the existing Maple Lane

Road. The construction of the water line is critical to the project and has been included as an interrelated and interdependent action.

The project area is a 2.3775-acre woodlot surrounded by roads and commercial development (Figure 2). Currently, a single jurisdictional 0.08-acre wetland exists on the project site (PSI 2018). This wetland is dominated by emergent vegetation and is essentially a linear drainage ditch that was constructed by a previous land owner. PSI, Inc. also completed a wetlands quality assessment using Ohio EPA's Ohio Rapid Assessment Method (ORAM). The wetland scored an ORAM value of 11 which is indicative of lower quality Category 1 wetlands systems.

The majority of the 2.3775-acre woodlot will be cleared to construct the project. Upon completion of project construction, 0.09 acre of the woodlot will remain along the southern border of the site surrounding 0.04 acre of wetland to also be preserved. The total amount of tree clearing required to construct the project is 2.2875 acres.

Figure 1. Aurora Animal Care Center Project Location.

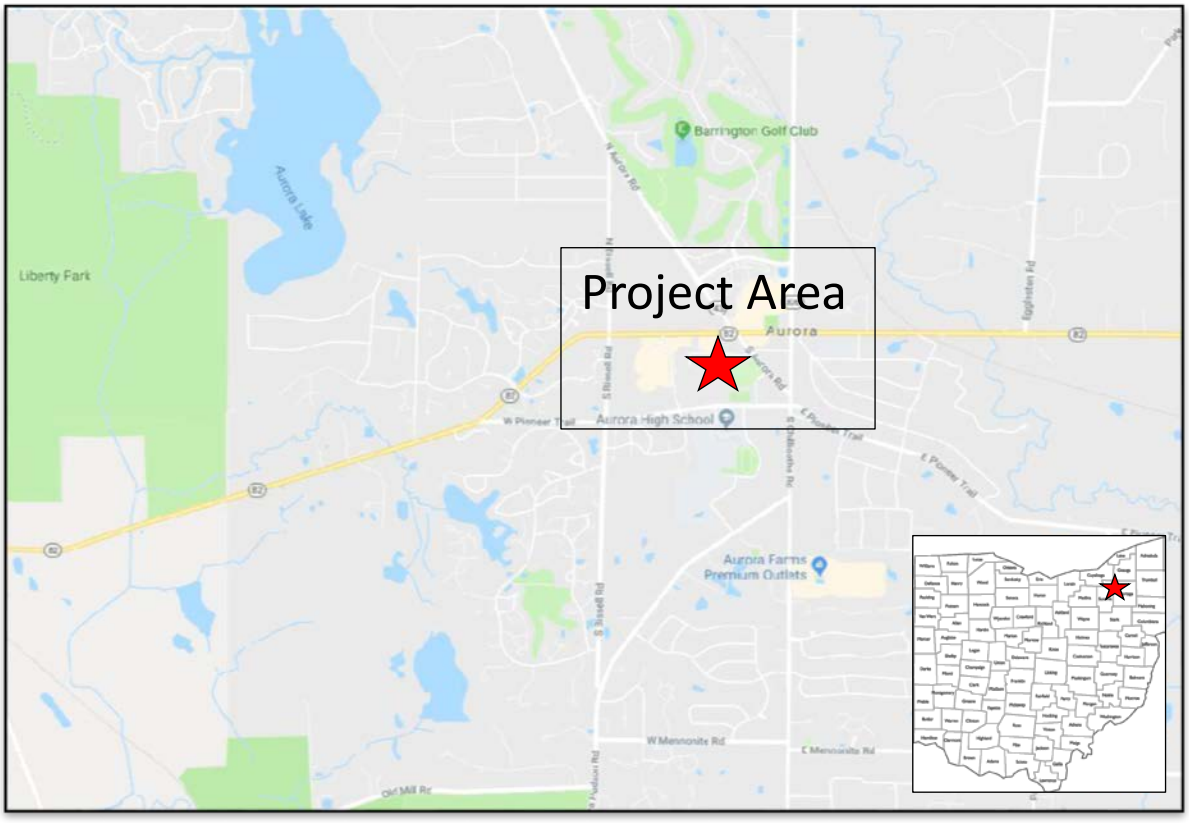
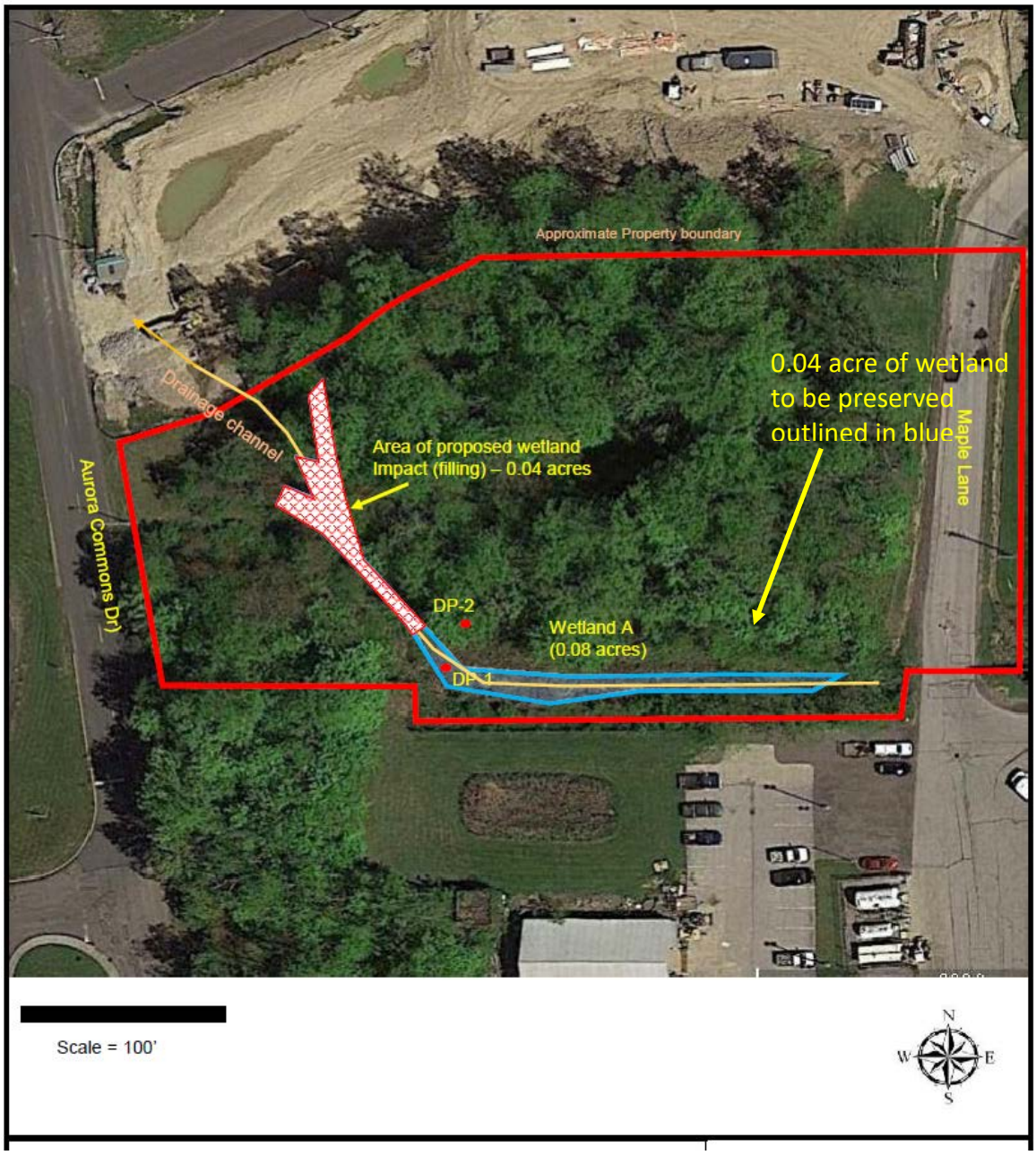


Figure 2. Map of project area indicating wetland impact and preservation areas



Construction

The project will be constructed in a single event and will take approximately 11 months to complete. To construct this development, clearing of trees, grading, and filling of wetlands will be required. AACC intends to remove trees during the summer season and proposes to begin tree clearing immediately after the issuance of the NWP. Standard construction equipment will be utilized

including chainsaws, excavators, bulldozers, drills, wood saws, electric hammers, and cement mixers. Construction activities will take place during daylight hours and in compliance with building codes of the City of Aurora, Ohio (City of Aurora 2018). No tree clearing is necessary to construct the waterline.

Operation and Maintenance

Once the project is complete, the facility and waterline will be fully operational and will not require any major ground disturbing work or additional tree clearing. The new use of the project area will be similar to the surrounding commercial landscape and will likely not be measurable or noticeable.

Conservation Measures

Conservation measures are those actions taken to benefit or promote the recovery of the species. These actions taken by the federal agency or the applicant that serve to minimize or compensate for project effects on the species under review and are included as an integral portion of the proposed action.

Proposed bat conservation measures were included in the BA. The Service recognizes that, individually and/or cumulatively, these bat conservation measures contribute to the avoidance and minimization of adverse effects to IBATs but that these measures do not necessarily eliminate all adverse effects that may result from the proposed action. These conservation measures are included below. AACC has agreed in the BA to implement the following conservation measures as part of this project in order to avoid and/or minimize the effects of the proposed action on the IBAT.

1. Protection of 0.04 acre of jurisdictional wetlands along the southern border of the project site. This area will be protected with a combination of fencing and signage. In addition, approximately 0.05 acre of adjacent forest will be preserved. A map showing the location of the preserved area is included in Figure 2.

2. Maintaining erosion control (*e.g.*, silt fencing, clearing and grading during drier periods, silt ponds to trap sediment prior to construction) throughout the construction process.

3. Establishing permanent vegetative cover of exposed soils through planting, seeding, or sodding with both native and ornamental plants.

4. Creating provisions for surface and stormwater runoff controls including a 12,000 square-foot (0.25-acres) retention pond that will support an aquatic habitat even during dry period.

Action Area

In 50 CFR §402.02 "action area" is defined as, "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." The action area is not limited to the footprint of the action and should consider the effects to the environment resulting from the action. Within a set action area, all activities that can cause measurable or detectable changes in land, air, and water or to other measurable factors that may elicit a response in the species or critical habitat are considered. The action area is not defined by the range of the species that would be impacted; rather it is defined by the impacts to the environment that would elicit a response in the species (USFWS and NMFS 1998). Therefore, the action area includes the AACC project footprint and the geographic extent of the area that could be affected by the construction, operation, and maintenance of the project either directly, indirectly, or through interrelated or interdependent actions.

The proposed project will include clearing and grading of the majority of the project site. Of all the project activities, clearing and construction noise is expected have the most far reaching changes to the natural environment. The increase in noise disturbance during clearing and construction could encompass an area up to 3,200 feet from the actual work limits. The effects of noise are expected to occur approximately 3200 feet outside of the 2.3775 acre project footprint, based on the following assumptions:

1. The ambient noise level in the project footprint is estimated to be 50 A-weighted decibels (dBA) (approximately the loudness of a clothes dryer when standing next to it) (Tragus 2018).

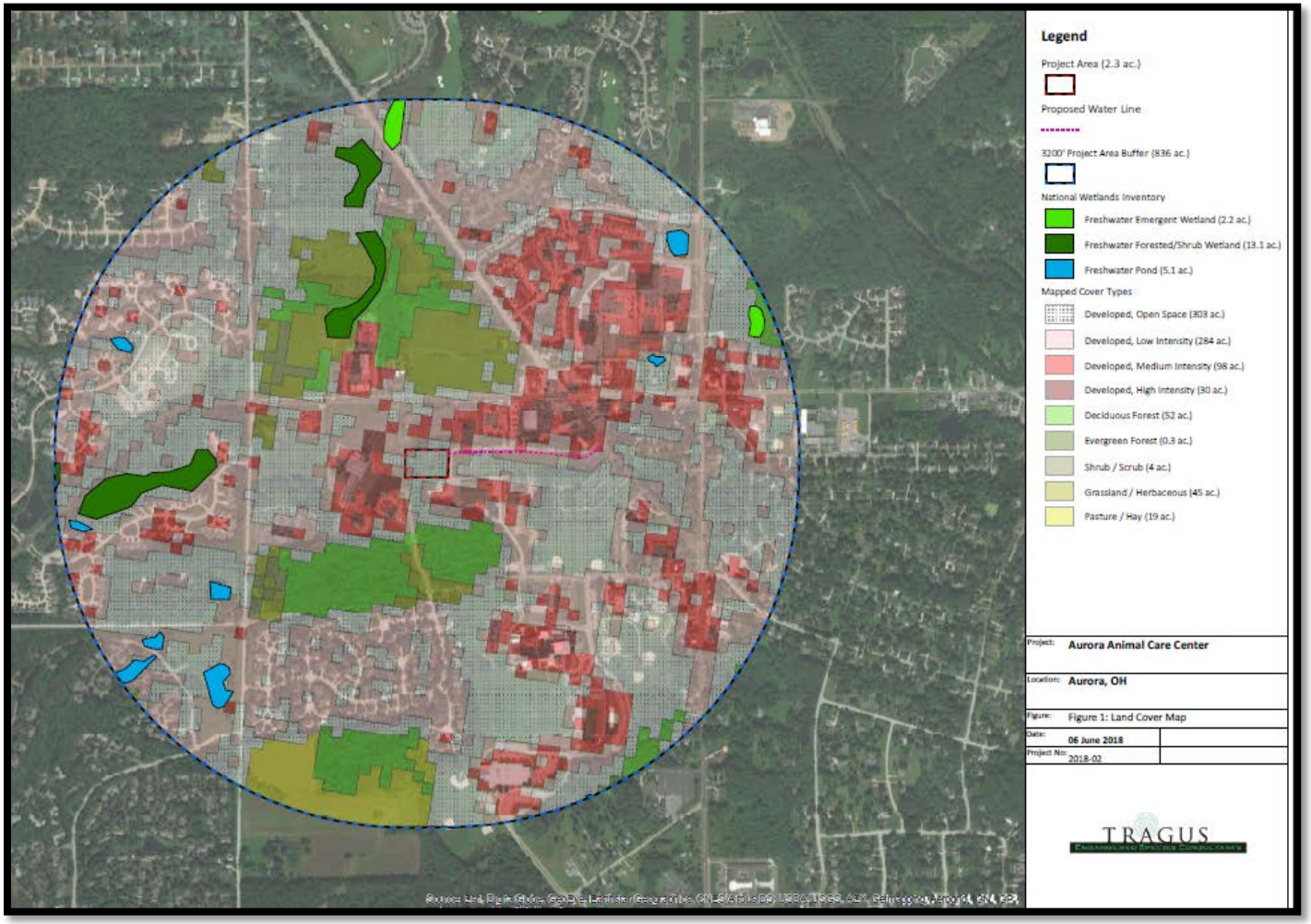
2. Noise level of construction equipment is approximately 85 dBA at 50 feet from the source (D. Snyder, FHWA, pers. comm.).

3. Noise decreases by approximately 5 dBA per doubling of distance from source over soft ground with heavy vegetative ground cover (Dave Snyder, FHWA, pers. comm.).

Based on these assumptions, construction noise of 85 dBA at the edge of the property line would travel up to 3200 feet beyond the property line before the distance traveled by the noise reduces it to 50 dBA.

Following construction, operation and maintenance of the facility are not anticipated to cause any additional environmental effects. Therefore, the action area for this consultation is the 2.3775-acre project area and a buffer distance of 3,200 feet around the project area (Figure 3) where construction noise will travel. The action area encompasses approximately 836 acres. Within the 836-acre action area, there is approximately 52 acres of deciduous forest that may be suitable habitat for the IBAT.

Figure 3. Action Area



STATUS OF THE SPECIES

Indiana Bat

Refer to the IBAT (*Myotis sodalis*) Draft Recovery Plan: First Revision (USFWS 2007) for the best available information on IBAT life history and biology, threats, distribution and overall status. The following is summary from that plan.

Life History and Biology

The IBAT is a temperate, insectivorous, migratory bat that hibernates colonially in caves and mines in the winter. In spring, reproductive females migrate and form maternity colonies where they bear and raise their young in wooded areas. Males and nonreproductive females typically do not roost in colonies and may stay close to their hibernaculum or migrate to summer habitat. Summer roosts are typically behind exfoliating bark of large, often dead, trees. Both males and females return to hibernacula in late summer or early fall to mate and enter hibernation.

Summer Habitat and Ecology

Suitable summer habitat for IBATs consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥5 inches diameter at breast height (dbh) (12.7 cm) that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat.

In summer, female IBATs form maternity colonies where they bear and raise their pups. Members of the same maternity colony exhibit strong site fidelity to summer roosting and foraging areas and will return to the same summer range annually. Maternity colony size averages between 50 and 80 adult females (Whitaker and Brack 2002).

Maternity colony habitats include riparian, bottomland, and floodplain forests, wooded wetlands, and upland forest communities. Maternity roost sites are most often under the exfoliating bark of dead trees, although live trees, especially shagbark hickory, are also used if they have flaking bark under which the bats can roost. Maternity colonies typically use 10 to 20 trees each year, but only one to three of these are primary roosts used by the majority of bats for some or all of the summer (Callahan 1993, Callahan *et al.* 1997). Roost trees can vary considerably in size, but primary roosts are usually large diameter snags (dead trees). Although male IBATs may roost in

trees less than 5 in dbh, suitable roosting habitat is defined as forest patches with trees of 5 in dbh or larger (USFWS 2018a). Although roost trees are often in mature mostly closed-canopy forests, maternity roost trees, especially in Ohio, are typically in open areas exposed to solar radiation (i.e., sunlight on the roost area for at least part of the day). These trees may be in canopy gaps in the forest, in a fence line, or along a wooded edge. Roost trees, although ephemeral in nature, may be occupied by a colony for a number of years until they are no longer suitable.

IBATs eat a variety of flying insects found along rivers or lakes and in uplands. IBATs typically forage within 2.5 miles from roost trees. When the locations of roost trees are unknown, the home range for a maternity colony is considered to be all suitable habitat within 5 miles from capture points (USFWS 2011a).

Female IBATs give birth to one young each year (Mumford and Calvert 1960, Humphrey *et al.* 1977, Thomson 1982). Most births occur in mid to late June and lactation continues into July for 3 to 5 weeks (Kurta and Rice 2002). Young bats can fly at about four weeks of age after which maternity colonies begin disbanding. A few bats from maternity colonies may commence fall migration in August, although at many sites some bats remain in their maternity colony area through September and even into October (Humphrey *et al.* 1977, Kurta *et al.* 1993). Members of a maternity colony do not necessarily hibernate in the same hibernacula (Kurta and Murray 2002).

Migration

IBATs can migrate hundreds of kilometers from their hibernacula (USFWS 2007). In the Midwest Recovery Unit (RU), the maximum documented migratory distance is 574.5 km (357 mi) (Winhold and Kurta 2006). Migration is an energetically demanding behavior for the IBAT, particularly in the spring when their fat reserves and food supplies are low and females are pregnant. Some IBATS may also spend the summer near their hibernacula without migrating (Whitaker and Brack 2002).

Winter Habitat and Ecology

IBATs tend to hibernate in the same cave or mine at which they swarm (LaVal *et al.* 1976), although swarming has been observed at hibernacula other than those in which the bats hibernated (Cope and Humphrey 1977; MacGregor 2005, pers. comm.) and at caves that do not serve as hibernacula for the species (Brack 2006, pers. comm.). It is generally accepted that IBATs, especially females, are philopatric; that is, they return annually to the same Hibernacula (LaVal and LaVal 1980). However, exceptions have been noted (Hall 1962, Myers 1964). Some IBATs apparently also move from traditional hibernacula to occupy manmade hibernacula, primarily mines, as these become available.

Most IBATs enter hibernation by the end of November (mid-October in northern areas) (Kurta et al. 1997), although populations of hibernating bats may increase throughout fall and into early January at some hibernacula (Clawson et al. 1980). IBATs usually hibernate in large, dense clusters ranging from 300 bats per square foot (LaVal and LaVal 1980) to 484 bats per square foot (Clawson et al. 1980, Hicks and Novak 2002), although cluster densities as high as 500 bats per square foot have been recorded (Stihler 2005). While the IBAT characteristically forms large clusters, small clusters and single bats also occur (Hall 1962, Hicks and Novak 2002).

IBATs often winter in the same hibernaculum with other species of bats and are occasionally observed clustered with or adjacent to other species, including gray bats (*Myotis grisescens*), Virginia big-eared bats (*Corynorhinus townsendii virginianus*), little brown bats (*Myotis lucifugus*), and northern long-eared bats (Myers 1964, LaVal and LaVal 1980).

Spring Staging and Fall Swarming Habitat and Ecology

Upon arrival at hibernacula, IBATs mate and build up fat reserves by foraging, usually in close proximity to the cave. This period of activity prior to hibernation is called swarming, which is a critical part of the life cycle when IBATs converge at hibernacula, mate, and forage until sufficient fat reserves have been deposited to sustain them through the winter (Hall 1962). Swarming behavior typically involves large numbers of bats flying in and out of cave entrances throughout the night, while most of the bats continue to roost in trees during the day.

IBATs arrive at their hibernacula in preparation for mating and hibernation as early as late July; usually adult males or non-reproductive females make up most of the early arrivals (Brack 1983). The number of IBATs active at hibernacula increases through August and peaks in September and early October (Cope and Humphrey 1977, Hawkins and Brack 2004, Hawkins *et al.* 2005). Swarming continues for several weeks and mating may occur on cave ceilings or near the cave entrance during the latter part of the period. After fall migration, females typically do not remain active outside the hibernaculum as long as males. Males may continue swarming through October in what is believed to be an attempt to breed with late arriving females. Most Indiana bats enter hibernation by the end of November (mid-October in northern areas) (Kurta *et al.* 1997).

Limited mating activity occurs throughout the winter and in spring before the bats leave hibernation (Hall 1962). Young female bats can mate in their first autumn and have offspring the following year (although how many actually do so is variable), whereas males may not mature until the second year.

Shortly after emerging from hibernation in the spring, females become pregnant via delayed fertilization from the sperm that has been stored in their reproductive tracts through the winter. Most reproductive females leave immediately for summer habitat although some may linger for a few days near the hibernaculum. Members of a maternity colony do not necessarily hibernate

in the same hibernacula (Kurta and Murray 2002). Males and non-reproductive females may stay near hibernacula or travel to summer habitat.

Threats

The IBAT was one of 78 species first listed as being in danger of extinction under the Endangered Species Preservation Act of 1966 because of large decreases in population size and an apparent lack of winter habitat (USFWS 1983, USFWS 1999). The 1967 federal document that listed the IBAT as "threatened with extinction" (32 FR 4001, March 11, 1967) did not address the five factor threats analysis later required by section 4 of the 1973 ESA. The subsequent recovery plans do address threats to the species in greater detail. Threats to the species discussed in the 2007 Recovery Plan (USFWS 2007) include the following: destruction/degradation of hibernation habitat (caves and mines); loss and degradation of summer habitat, migration habitat, and swarming habitat (especially forested habitats); disturbance of hibernating bats; predation; competition; inadequacy of existing regulations, particularly regulations that protect summer roosting habitat; natural catastrophes in hibernacula, such as flooding; and, environmental contaminants.

Since 2006, white-nose syndrome (WNS) has emerged as a new threat that may have serious implications for IBAT recovery. WNS primarily affects hibernating bats. Affected bats usually exhibit a white fungus on their muzzles, ears, and wings (Blehert et al. 2009). The fungus associated with WNS has been identified as *Pseudogymnoascus destructans* (formerly *Geomyces destructans)*, a previously undescribed species (Minnis and Lindner 2013). The fungus thrives in the cold and humid conditions of bat hibernacula (USFWS 2011b). The skin infection caused by *P. destructans* is thought to act as a chronic disturbance during hibernation (USGS 2010). The fungus invades living tissue, causing cup-like epidennal erosions and ulcers (Meteyer et al. 2009, Puechmaille et al. 2010). These erosions and ulcers may in turn disrupt the many important physiological functions that wing membranes provide, such as water balance (Cryan et al. 2010). Infected bats exhibit premature arousals, aberrant behavior, and premature loss of critical fat reserves which is thought to lead to starvation prior to spring emergence (Frick et al. 2010). It has been determined that *P. destructans* is the primary cause of death (Lorch et al. 2011).

It is believed that WNS is primarily transmitted through bat-to-bat contact. In addition, people may unknowingly contribute to the spread of WNS by visiting affected caves and subsequently transporting fungal spores to unaffected caves via clothing and gear (USFWS 2011b). Within the U.S., WNS has been diagnosed on the IBAT, northern long-eared bat, gray bat, little brown bat, eastern small-footed bat (*Myotis leibii*), tri-colored bat (*Perimyotis subflavus*), big brown bat (*Eptesicus fuscus*), long-legged bat (*Myotis volans*), cave myotis (*Myotis velifer*), Yuma bat (*Myotis yumanenis*), and southeastern bat (*Myotis austroriparius*).

First documented in a New York Cave in 2006, WNS has since spread to 33 states and 7 Canadian provinces, including over 50 known IBAT hibernacula. Affected hibernacula typically exhibit significant mortality (USFWS 2017). WNS has resulted in significant population

declines in the Northeast and Appalachian Recovery Units (RUs). Between 2009 and 2017, the Northeast RU lost 62 % and the Appalachia RU lost 92% of their IBAT populations (USFWS 2017). WNS is spreading rapidly throughout the rest of the IBAT's range. WNS continues to be found at an increasing number of sites throughout the Midwest RU. In March 2011, the first case of WNS was confirmed in Ohio, in an abandoned mine in Lawrence County. Currently, 16 counties in Ohio have been confirmed as WNS positive (ODNR 2014). Declines in IBAT populations are apparent. As the disease spreads, further declines in populations are expected. The Service, with the help of States, researchers, and others, is continuing to research this evolving threat. Methods are being evaluated to stop the spread of WNS and to minimize mortality where it currently exists.

Another emerging risk to bat species is the recent increase in the number of wind turbines being constructed and operated. To date, 10 IBAT fatalities have been documented at wind energy facilities (USFWS 2018b). While it is assumed that other IBAT mortalities have occurred at wind facilities, these fatalities represent the only documented take at wind facilities to date.

Status of the Indiana Bat in Ohio

The entire State of Ohio is considered to be within the core maternity range of the IBAT. However, the total population of IBATs within Ohio during the summer is unknown. The Service assumes that the IBAT may be present anywhere within Ohio during the summer where suitable habitat exists. The Service recognizes that there is no way to know the actual number of IBATs that occur in Ohio during the summer. What is known is that the total estimated population of IBATs disperses over a large area during the spring.

IBATs and their maternity colonies have been documented throughout the state. IBATs are known to hibernate in southern Ohio and south of Ohio in Kentucky and Tennessee as well as to the southwest in southern Indiana, and to the east in Pennsylvania. Researchers have documented that IBATs migrate over long distances (up to 300 miles) between summer and winter habitats (Kurta and Murray 2002). The summer and winter habitats for others may be in close proximity. However, when comparing the IBATs known wintering sites to the documented summer sites, it is apparent that there is a general trend of dispersal of IBATs from their hibernacula throughout the eastern U.S. This suggests that many IBATs are moving in a somewhat northerly direction during spring emergence. Thus, it is a reasonable assumption that a number of IBATs migrate into Ohio following hibernation where they remain for the summer.

Ohio has two confirmed IBAT hibernacula. Since 2011 when WNS was first detected in the state, winter monitoring of these hibernacula has documented a decline of approximately 69% of Ohio's winter IBAT population (USFWS 2017). It is not known whether this documented winter decline represents a 69% loss of IBAT due to WNS-caused mortality or if IBATs are shifting to alternative hibernacula locations due to the presence of WNS. It is possible that the winter decline may be due to a combination of both factors.

Ohio also has multiple confirmed fall swarming sites where Indiana bats may also be hibernating, including one located in Liberty Park in the City of Twinsburg in Summit County in northeast Ohio. These swarming sites may also serve as hibernacula for IBATs. Due to the structure of most of these fall swarming sites, which are primarily abandoned underground coal mines, entry during the winter to survey for hibernating IBATs is not possible due to safety concerns or the narrow size of the openings. Due to the inability to survey these swarming sites in the winter, they are also assumed to be used by IBATs for hibernation,

Critical Habitat

Critical habitat was designated for the species on September 24, 1976 (41 FR 41914). Eleven caves and two mines in six states were listed as critical habitat. None of these critical habitat units occur within Ohio.

Conservation Needs of the Species

To recover the IBAT, it is important to ensure genetic representation, redundancy (populations distributed across the landscape) and resiliency (sufficiently large populations). To do this, the following must be addressed:

1. Maintaining the current winter and summer range of the IBAT. The key steps of conserving and managing IBATs across the species range include establishing IBAT RUs, and maintaining self-sustaining IBAT populations in each RU.

2. Conserving and managing winter colonies and hibernacula. The key steps in conserving and managing winter colonies and hibernacula include: maintaining both large and small hibernating populations; maintaining or providing appropriate physical structure, airflow, and microclimate of the hibernacula; maintaining forest habitat surrounding hibernacula; avoiding disturbance of hibernating bats which can lead to excessive arousal and premature depletion of fat reserves; and minimizing disturbance of bats during the swarming period that can lead to disruptions in mating and foraging activity.

3. Conserving and managing maternity colonies. The key steps in conserving and managing maternity colonies include: locating maternity colonies in each RU via spring emergence radio tracking or summer surveys; ensuring a sufficient number of self-sustaining maternity colonies persist in order to support the regional population (i.e., RU population) by managing and controlling threats acting singly and cumulatively upon the fitness of maternity colonies; and, maintaining the ecological processes that ensure the continued availability of roosting, foraging, and commuting habitat needed to support maternity colonies.

4. Conserving migrating IBATs. The key steps in conserving and managing migrating IBATs include: understanding IBAT migration, including migratory routes, behaviors and differences

between fall and spring migration; maintaining safe and suitable migration pathways across the species range; conserving and managing important stopover habitat, if such habitat is deemed necessary; identifying limiting factors and managing threats during migration, including minimizing/managing fatalities due to wind energy.

5. Managing the effects of WNS. There is currently no effective treatment for WNS. The key steps of managing the impacts of WNS may include: avoiding/minimizing the transmission of *P. destructans;* implementing measures to control *P. destructans* should effective, non-harmful measures become available; and restoring and protecting populations affected by WNS, with emphasis on populations that are seemingly more resilient to the disease.

ENVIRONMENTAL BASELINE

The Environmental Baseline analyzes the effects of past and ongoing human and natural factors leading to the current status of the species, their habitat, and the ecosystem within the action area. In order to assess the potential for the IBAT to occur within the action area, the Service must formulate reasonable assumptions. These assumptions must be made in order to analyze the potential effects of the action. It is important to note that the Service has been mandated by Congress to provide the benefit-of-the-doubt to federally listed species (H.R.Conf. Report No. 697, 96th Cong., 2d Session, 1979). That is to say, the Service must err on the conservative side (the side of the species) when making reasoned assumptions.

Status of the Indiana Bat in the Action Area

Summer Habitat

The entire State of Ohio is considered to be within the core maternity range of the IBAT. Therefore, the Service assumes that the IBAT may be present anywhere within Ohio during the summer where suitable habitat exists. Within the action area there have been no summer bat mist-net surveys conducted. However, IBATs are assumed to be present in the action area during the summer. This assumption is based on fall captures of IBATs at Liberty Park approximately 2.8 miles to the west of the project. This fall swarming site is also presumed to be an IBAT hibernacula. Some IBATs have been shown to remain near their fall/winter habitat year around (LaVal *et al.* 1976), so it is reasonable to assume that IBATs are likely utilizing the action area during the summer, as well as the fall and spring, for roosting and foraging.

The total proposed tree clearing for the project is 2.2875 acres of the 2.3775 acre site. The IBAT is presumed to be present during the summer within the entire area proposed for tree clearing.

IBATs present during summer in the action area may include reproductively active females, non-reproductively active males and females, and juveniles. It is difficult to quantify the actual number of IBATs that may be present because IBATs are not uniformly dispersed on the

landscape during the summer. For example, IBAT density would greater in areas where maternity colonies are present.

Due to the small amount of habitat in the project area (2.3775 acres) within the action area and the surrounding landscape, it is reasonable to assume that the action area does not support a high density of IBATs throughout. Therefore, the Service estimates that no more than one (1) IBAT maternity colony occurs within the action area.

The average number of IBAT adults in a maternity colony is between 50 and 80 bats (Whitaker and Brack 2002). Therefore, we anticipate that 1 colony with up to 80 adult females each occurs in the action area. In addition, the action area likely supports some males and non-reproductive females during the summer.

Fall, Winter, and Spring Habitat

Eight IBATs (males and females) have been captured swarming near two sandstone ledges in Liberty Park, approximately 2.2 miles west of the action area, in the fall of 2004 (Tragus 2018.). Swarming and staging surveys of bats at the entrances to the sandstone ledges during spring and fall 2003–2009 have documented a variety of bat species utilizing the ledges for hibernation. Little brown bats, northern long-eared bats, big brown bats, and tri-colored bats have been documented by emergence surveys at the ledges in spring, indicating that the ledges are serving as a hibernaculum for these species. IBATs have only been captured during the fall and not during the spring but the interior of the ledges cannot be accessed to survey for bats during hibernation. IBATs often hibernate at their fall swarming locations (LaVal *et al.* 1976). Therefore, the Service assumes that IBATs are hibernating in the ledges. Multiple studies have documented IBATs roosting and foraging during the fall swarming and spring staging periods within the landscape surrounding their hibernacula. The Service uses a 5-mile buffer around known fall swarming and hibernacula locations to delineate the area likely to be used by IBATs for roosting and foraging during the spring, summer, and fall. Because the action area lies within 2.2 miles of the hibernaculum, the Service believes it is reasonable to assume that a IBATs use wooded portions of the action area for roosting and foraging during the spring, summer, and fall. Given the small size of the action area and its overall developed land uses, the number of Indiana bats that use the action area is likely low, although we cannot determine exact numbers.

Habitat Conditions in the Action Area

The action area is largely dominated by residential and commercial development, a golf course comprises a small portion of the northern area. There are numerous local roads and state-route highways. There is an estimated 52 acres of deciduous forest in the action area (Figure 3). Within the project area, there are 2.3775 acres of deciduous forest. Tragus Environmental Consulting conducted a habitat assessment of the project area in May and June of 2018. There are a few older and more mature tree specimens, though most of the forest stand is very young

(10-15 year age forest stand). The site is dominated by red maple (*Acer rubrum*) and sugar maple (*Acer saccarum*). The understory is largely cluttered by invasive European buckthorn (*Rhamnus, sp*.) and young ash seedlings (*Fraxinus, sp*.) (Tragus 2018). Forest composition is included in Table 2.

Table 2. Forest Composition in the Project Area

Tree Species	**Scientific Name**
Norway Maple	*Acer platanoides*
Red Maple	*Acer rubrum*
Sugar Maple	*Acer saccharum*
Shagbark Hickory	*Carya ovata*
Hawthorn	*Crataegus sp.*
Ash	*Fraxinus sp.*
Black Cherry	*Prunus serotina*
Apple	*Pyrus malus*
American Elm	*Ulmus americana*
Red Oak	*Quercus rubra*
Quaking Aspen	*Populus tremuloides*
Black Locust	*Robinia psuedoacacia*
Cottonwood	*Populus deltoides*
Tuliptree	*Liriodendron tulipifera*

EFFECTS OF THE ACTION

This BO evaluates the anticipated effects of the AACC project on the IBAT. This project will require removal of 2.2875 acres of IBAT habitat. Potential effects to the IBAT include direct and indirect effects. Direct effects occur when bats are present while the activities are being conducted; indirect effects occur later in time. Effects will vary based on the type of the proposed activity.

Direct and Indirect Effects

The project will require the clearing of 2.2875 acres of forested habitat. Clearing for the project will occur immediately upon completion of the biological opinion and issuance of the NWP to the applicant. Therefore, tree clearing may occur during the IBAT summer maternity, fall swarming, and/or spring staging periods when IBATs are present. Tree clearing and

construction activities could directly and indirectly affect IBATs in the action area during all of these periods. During the winter when IBATs are hibernating, no effects to IBATs are anticipated due to the distance from the project site to the hibernaculum (approximately 2.2 miles from the action area and 2.8 miles from the project site).

Effects from Tree Clearing

Roost trees

Removal of trees in the spring, summer, and/or fall (between March 15 and November 15) has the potential to directly impact maternity colonies as well as males and nonreproductive female bats. Direct impacts to roosting IBATs will occur when trees are cut while they are occupied. Removal of occupied roost trees when bats are present could result in crushing or injury of adult or juvenile IBATs. Non-volant pups would be unable to fly and would be especially susceptible to being injured or killed when the tree falls. If a primary maternity roost tree or several secondary roost trees are removed during the summer maternity period, the exposed individuals will need to search for new roosting sites. This can lead to increased energy expenditure, torpor, and possibly loss of young if the expenditure is sufficiently severe and prolonged. However, due to the small amount of tree clearing for the project and the availability of suitable roosting habitat in the surrounding landscape (e.g. Liberty Park), it is likely that these bats would be able to locate new roost trees in a relatively short timeframe.

If tree removal for the project occurs between November 16 and March 14 during the IBAT hibernation period, take in the form of harassment is possible as they are displaced from their roosts when they return in the spring. Due to the availability of suitable roosting opportunities in the surrounding landscape, it is likely that these bats will have little difficulty in locating new roosts. If tree clearing occurs during the winter hibernation period, effects to IBATs is likely to be insignificant and discountable, not rising to the level where any take occurs. As previously stated, the applicant intends to initiate tree clearing immediately upon the conclusion of formal consultation and issuance of the NWP. Therefore, tree clearing for this project will likely occur prior to the hibernation period when bats would be present.

Tragus (2018) reports that there are a few trees with suitable characteristics for maternity colonization in the project area to be cleared. Therefore, the Service assumes that a primary maternity roost tree and several secondary roost trees will be cleared, resulting in direct effects to IBATs in the form of injuries, mortality, and harassment.

Foraging

IBATs forage within and around the canopy of upland forests and occasionally forage over forest clearings, water, and along roads. The forested habitat within the project footprint and within the action area provides suitable foraging habitat for IBATs. The loss of foraging habitat when bats

are present could directly affect the IBAT by disrupting bat foraging patterns within the action area. During tree clearing, some individual bats may avoid crossing the project footprint. Bats in this scenario would be subject to take in the form of harassment as they are displaced from their home range. Due to the availability of suitable foraging opportunities in the surrounding landscape, it is likely that these bats will have little difficulty in establishing new foraging home ranges.

Bats that remain loyal to certain foraging areas may continue to cross through newly cleared areas in the project footprint and would likely have an increased risk of mortality from predation although this risk is not detectable or measurable. Due to the small size of the project, individual bat foraging areas are not likely to be significantly altered and indirect adverse effects to individual bats are not anticipated.

Effects from Noise and Disturbance

Noise and vibration and general human disturbance are stressors that may disrupt normal feeding, sheltering, and breeding activities of the IBAT. Bats may be exposed to noise, vibrations, and disturbance from tree clearing and equipment operation in and near their roosting and foraging areas.

There is limited literature available regarding impacts from noise (outside of road/traffic) on bats. Gardner et al. (1991) had evidence that an IBAT, continued to roost and forage in an area with active timber harvest. Callahan (1993) noted that the likely cause of the bats in his study area abandoning a primary roost tree was disturbance from a bulldozer clearing brush adjacent to the tree. Therefore, novel noises would be expected to result in some changes to bat behaviors.

Increased noise created by construction equipment within the project area could disturb bats day roosting in nearby forests during spring, summer, and fall. This potential disturbance would be localized and short-term for the project. The novelty of these noises and their relative volume levels will likely dictate the range of responses from individuals or colonies of bats. At low noise levels (or farther distances), bats initially may be startled and have increased respiration/heart rates, but they would likely habituate to the low background noise levels. At closer range and louder noise levels (particularly if accompanied by physical vibrations from heavy machinery and crashing of falling trees), many bats would probably be startled to the point of fleeing from their day-time roosts and in a few cases may experience increased predation risk. Because the noise levels in construction areas will continue for more than a single day, the bats roosting within or close to these areas are likely to shift their focal roosting areas farther away or may temporarily abandon these roosting areas completely. Gardner et al. (1991) suggested that noise and exhaust emissions from machinery could possibly disturb colonies of roosting bats, but such disturbances would have to be severe to cause roost abandonment. Callahan (1993) noted that the likely cause of the bats in his study area abandoning a primary roost tree was disturbance from a bulldozer clearing brush adjacent to the tree.

Effects from Lighting

Lighting may be used during project construction during dawn and dusk later in the year when daylight hours become limited. Bat behavior may be affected by lights when traveling between roosting and foraging areas. Foraging in lighted areas may increase risk of predation (leading to death) or it may deter bats from flying in those areas. Bats that significantly alter their foraging patterns may increase their energy expenditures resulting in reduced reproductive rates. This depends on the context (e.g., duration, location, extent, type) of the lighting.

While there is limited information regarding potential neutral, positive, or negative impacts to bats from increased light levels, slow-flying bats such as *Rhinolophus, Myotis, and Plecotus* species have echolocation and wing-morphology adapted for cluttered environments (Norberg and Rayner 1987), and emerge from roosts relatively late when light levels are low, probably to avoid predation by diurnal birds of prey (Jones and Rydell 1994). Therefore, we would generally expect that IBATs would avoid lit areas. In Indiana, IBATs avoided foraging in urban areas and Sparks *et al.* (2005) suggested that it may have been in part due to high light levels.

Lighting for the project during construction will be limited to dusk and dawn during the fall when daylight hours are reduced. Lighting would be an additional disturbance occurring at the same time as construction noise. By fall, the ongoing construction disturbances will likely have already resulted in bats shifting their roosting and foraging usage of the action area. Furthermore, in mid-September when lighting may begin being utilized, bat usage of the action area will likely be reduced as bats migrate and engage in fall swarming. Therefore, lighting effects on bats are anticipated to be insignificant and discountable.

Effects from Wetland Impacts

Earthwork and general construction activities may result in short-term adverse impacts to the water quality in the action area and these impacts are anticipated to be limited to within the project footprint. A stormwater detention basin will be constructed roughly in the same location as the filled portion of the wetland. This stormwater detention feature will replace many of the functions and values that the existing wetland provides. It has been designed to include some open water even during non-rain events and therefore providing a potential drinking water source for bats. Once established, the detention basin may also provide habitat for aquatic insects and may provide additional prey for bats. Any potential direct and indirect effects to IBATs from a reduction in water quality are anticipated to be insignificant and discountable.

Cumulative Effects

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because

they require separate consultation pursuant to section 7 of the ESA. This section analyzes the added impact from cumulative effects.

Currently, residential and commercial development surrounds the project area and dominates the action area. The Service is unaware of any tribal, state, local, or private actions presently occurring or that are reasonably certain to occur in the future, which would destroy, modify or curtail the IBAT summer habitat within the action area. Therefore we do not anticipate significant cumulative effects from the proposed action, combined with other reasonably foreseeable non-federal actions.

Summary of Effects

Impacts to Individuals

Potential effects of the action include direct effects to IBAT present within the action area when activities are being conducted, and indirect effects as a result of changes in habitat suitability. Direct effects to individual bats include mortality, injury, and harassment as a result of removal roost trees and foraging habitat when bats are likely present. The potential for direct effects is greatest between June 1 and July 31 when non-volent pups would be most suseptable to being injured or killed as they would be unable to fly away from a roost tree before is felled. Considering the timing of this consultation, tree clearing in the months of June are July is unlikely, therefore the risk of injury or mortality to non-volant pups is low. Disturbance from the tree clearing and construction activities may also harass bats and cause them to alter their roosting and foraging activities.

Indirect effects from the action may result from habitat modification and primarily involve changes to roosting and foraging suitability. Given the small size of the project and small amount of habitat to be lost, indirect effects on the IBAT from the project are likely to be insignificant and discountable.

Impacts to Populations

As we have concluded that individual IBATs are likely to experience mortality, injury, or harassment, we need to assess the aggregated consequences of the anticipated reductions in fitness (i.e., reproductive success and survival), of the exposed individuals on the populations (maternity colonies) to which these individuals belong. We recognize the potential for a small amount of injury or lethal take of adults and/or juveniles, but we believe the IBAT colony affected should be able to sustain the worst-case losses discussed above.

Impacts to the Species

Reductions in the maternity colonies' population fitness are unlikely to occur. Thus, no component of the proposed action is expected to reduce the reproduction, numbers, or distribution of the IBAT rangewide. While we recognize that the status of the species is uncertain due to WNS, given the environmental baseline, and the intensity, frequency, and duration of the project impacts, we find that the proposed project is unlikely to have population-level impacts, and thus, is also unlikely to decrease the overall reproduction, numbers, or distribution of the IBAT. Therefore, we do not anticipate a reduction in the likelihood of both survival and recovery of these species as a whole.

Based on the analysis above, despite the anticipated adverse effects to IBAT from the removal of 2.287 acres of trees when IBATs are present, the proposed action should not decrease the reproduction, numbers, or distribution of the IBAT in a way or to the extent that would cause an appreciable reduction in the likelihood of both survival and recovery of the species as a whole.

CONCLUSION

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the IBAT. No critical habitat for the IBAT occurs in the action area; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR § 17.3). Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

AMOUNT OR EXTENT OF TAKE

Incidental take of IBATs present in the action area could occur due to tree clearing and noise disturbance during clearing and construction. The Service anticipates incidental take of the IBAT will be difficult to detect for the following reasons: (1) individuals are small and occupy summer habitats where they are difficult to find; (2) the species forms widely dispersed maternity colonies under loose bark or in the cavities of trees, and males and non-reproductive females may roost individually which makes finding the species or occupied habitats difficult; (3) finding dead or injured specimens during or following project implementation is unlikely; (4) the extent and density of the species within its summer habitat in the action area is unknown; and (5) in many cases incidental take will be non-lethal and undetectable.

The Service anticipates that no more than 2.2875 acres of habitat occupied by one IBAT maternity colony and individual male and non-reproductive IBATs will be lost as a result of the project.

We anticipate that a small number of IBATs may be injured or killed in the project area during tree clearing that occurs between March 15 and November 15. This is likely to occur if an occupied roost tree is felled. We also anticipate that a small number of IBATs may be harassed in the action area during project construction due to the loss of foraging habitat and noise. We anticipate that clearing during the active season will result in take in the form of injury or death, of no more than two IBATs. Additionally, some IBATs will be harassed during clearing and construction.

Monitoring to determine actual take of individual bats is not possible. Inspecting individual trees is not considered by the Service to be a practical survey method and is not recommended as a means to determine incidental take. However, the potential roosting and foraging habitat affected can be used as a surrogate to monitor the level of take. Therefore, the Corps must reinitiate consultation with the Service if more than 2.3 acres of forested habitat are removed during the project.

EFFECT OF THE TAKE

Overall, the injury or death of two IBATs, and harassment of an additional number of IBATs is not likely to cause population-level effects. In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the IBAT. No critical habitat for the IBAT occurs in the action area so none will be impacted.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize the impacts of incidental take of IBATs during the construction of the

project.

1. The Corps will ensure the permittee will monitor take to verify that the authorized level of take has not been exceeded within their permit area during construction of the project. AACC must comply with this RPM in areas outside of the Corps' permit area.

2. Implementation of all conservation measures proposed by AACC in the BA.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the ESA, the Corps and AACC must comply with the following terms and conditions, which implement the reasonable and prudent measures. These terms and conditions are non-discretionary.

1. AACC will monitor tree clearing limits to ensure no more than 2.3 acres of trees are cleared for the project.

2. Take by injury and mortality during project construction when trees are being cleared from the project area will be monitored. This will include ensuring that all contractors and others present during clearing activity are fully informed of the potential to encounter dead or injured bats and of AACC's responsibilities if dead or injured bats are encountered. Individuals present during clearing activities will be diligent in their efforts to locate dead or injured bats. If dead or injured bats are encountered, the number and location will be reported through the chain of command to AACC. The procedures in #2 below will also be followed. In addition to encountering dead or injured bats, those present on the project area during clearing activities will be diligent and aware of other factors that might indicate bat presence such as watching for bats flying away from areas where trees are cleared. These data will be reported to the Service as described in #2 below.

3. If a dead or impaired bats are found, care should be taken in its handling to preserve biological materials in the best possible state for later analysis of cause of death. In conjunction with the care of injured endangered or threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence associated with the specimen in not unnecessarily disturbed. The dead or impaired bat should be photographed prior to disturbing it or the site. The Service is to be notified 24 hours upon locating a dead or injured bat. Initial notification must be made to the U.S. Fish and Wildlife Service Ohio Ecological Services Field Office at (614) 416-8993. Notification must include the date, time, precise location of the injured animal or carcass, and any other pertinent information, including age, sex, and reproductive conditions of the individual(s). Formal written notice must also be submitted.

The RPMs, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. The Service believes that the action will result in the following:

1. Harassment of IBATs in the action area
2. Removal of 2.2875 acres of habitat occupied by IBATs
3. Death or injury of no more than two (2) IBATs

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid the adverse effects of a proposed action on listed species or critical habitat, to help carry out recovery plans, or to develop information.

The Service has identified the following actions that, if undertaken by the Corps or AACC, would further the conservation of the IBAT.

1. The Corps should seek opportunities to provide for bat education and outreach for staff and applicants.

2. AACC should seek opportunities to provide for bat education and outreach for staff and contractors.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the conservation recommendations carried out.

REINITIATION NOTICE

This concludes formal consultation for the Corps' actions outlined in your request dated July 11, 2018. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over an action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded (more than 2.3 acres of forested habitat is removed; and/or more than two (2) IBATs are injured or killed); (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such a take must cease pending reinitiation.

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