

Federal Highway Administration (FHWA), Federal Railroad  
Administration (FRA), and Federal Transit Administration (FTA)

Range-wide Programmatic Consultation for  
Indiana Bat and Northern Long-eared Bat

## Avoidance and Minimization Measures

*Updated January 2018*

For projects to be covered by the Programmatic Biological Opinion (BO), specific avoidance and minimization measures (AMMs) related to the Indiana bat and northern long-eared bat (NLEB) will be implemented where applicable. AMMs, if adopted under appropriate circumstances, are expected to reduce the potential impacts of the proposed action on both bat species. In some instances, impacts will be reduced to levels that are insignificant or discountable; therefore, not likely to adversely affect (NLAA) either species. In other cases, take will be unavoidable even with the implementation of AMMs; therefore, likely to adversely affect (LAA) either species.

The following AMMs are necessary to avoid and minimize impacts to the Indiana bat and NLEB, and where applicable, are required for projects using the range-wide programmatic consultation.

### AMMs for Projects NLAA

**Unless presence and absence (P/A) summer surveys<sup>1</sup> document that the species are not likely to be present, the following AMMs are REQUIRED, as applicable, in order for projects to NLAA the Indiana bat and the NLEB (i.e., projects qualify to use the range-wide programmatic informal consultation).**

#### *All NLAA Projects*

General AMM 1. Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

#### *Lighting*

Lighting AMM 1. Direct temporary lighting away from suitable habitat during the active season.

Lighting AMM 2. When installing new or replacing existing permanent lights, use downward-facing, full cut-off<sup>2</sup> lens lights (with same intensity or less for replacement lighting); or for those transportation

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<sup>1</sup> P/A summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernacula (contact local USFWS Field Office for appropriate home range) that result in a negative finding requires additional consultation with the local USFWS Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

<sup>2</sup> [http://www.lithonia.com/micro\\_webs/nighttimefriendly/cutoff.asp](http://www.lithonia.com/micro_webs/nighttimefriendly/cutoff.asp)

agencies using the BUG system developed by the Illuminating Engineering Society,<sup>3</sup> the goal is to be as close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable.

### **Tree Removal**

The word "trees" as used in the AMMs refers to trees that are suitable habitat<sup>4</sup> for each species within their range. The word **documented** means habitat where bats have actually been captured and/or tracked.

Tree Removal AMM 1. Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to the extent practicable to avoid tree removal in excess of what is required to implement the project safely.

*Note: Tree Removal AMM 1 is a minimization measure, the full implementation of which may not always be practicable. Projects may still be NLAA as long as Tree Removal AMMs 2, 3, and 4 are implemented.*

Tree Removal AMM 2. Apply time of year (TOY) restrictions for tree removal<sup>5</sup> when bats are not likely to be present, or

Limit tree removal to 10 or fewer trees<sup>6</sup> per project at any time of year within 100 feet of existing road/rail surface and **outside of documented** roosting/foraging habitat<sup>7</sup> or travel corridors;<sup>8</sup> visual emergence survey must be conducted **with no bats observed.**<sup>9</sup>

Tree Removal AMM 3. Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).

Tree Removal AMM 4. Do not remove:

- **documented** Indiana bat or NLEB roosts that are still suitable for roosting; or
- trees within 0.25 miles of roosts; or
- **documented** foraging habitat any time of year.

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<sup>3</sup> <http://www.ies.org/pdf/education/ies-fol-addenda-1-%20bug-ratings.pdf>

[http://shop.innovativelight.com/media/cms/BUG\\_ratings\\_3044A7612FA89.pdf](http://shop.innovativelight.com/media/cms/BUG_ratings_3044A7612FA89.pdf)

<sup>4</sup> See the USFWS' current summer survey guidance for our latest definitions of suitable habitat.

<sup>5</sup> Coordinate with the local USFWS Field Office for appropriate dates.

<sup>6</sup> Areas containing more than 10 trees will be assessed by the USFWS local field office on a case-by-case basis with the project proponent.

<sup>7</sup> Documented roosting or foraging habitat – for the purposes of this BA, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.

<sup>8</sup> Documented travel corridor - for the purposes of this BA, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked by using (1) radio telemetry; or (2) tree corridors located directly between documented roosting and foraging habitat.

<sup>9</sup> Refer to <http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>

## Bridges

The following Bridge AMMs are **REQUIRED**, as applicable, in order for projects to NLAA the Indiana bat and the NLEB (i.e., projects qualify to use the range-wide programmatic informal consultation) unless one or more of the following criteria apply:

- the bridge is 1000 feet or more from suitable bat habitat; or
- bridge assessments<sup>10</sup> have occurred to document no signs of bat use; or
- P/A surveys have occurred<sup>11</sup> to document that the bat species are not likely to be present.

Bridge AMM 1. To completely avoid direct effects to roosting bats, perform any bridge removal, replacement, and/or maintenance work during the winter hibernation period<sup>12</sup> unless a hibernating colony of bats is present. Also, follow Bridge AMM 4.

*Note: Bridge AMM 1 is an avoidance measure for direct effects, the full implementation of which may not be practicable. If bridge removal, replacement, and/or maintenance work must be performed outside of the winter hibernation period, then follow Bridge AMMs 2-4.*

### Bridge AMM 2. - Colony or Assuming Presence of Bats

If assuming presence of bats or if bridge assessment or P/A surveys suggest presence of a colony of bats, and work is conducted during the active season, ensure activity will not disturb bats. The following types of bridge work can generally be conducted with the presence of bats:

- above deck work where construction equipment or materials do not extend to the underside of deck where bats may be located (e.g., materials that may drip down to underside of deck), and does not include percussives (vibration) or noise levels above general traffic (e.g., road line painting, wing-wall work).
- below deck work that is conducted away from roosting bats and does not involve percussives or noise level above general traffic (e.g., wing-wall work, some abutment, beam end, scour, or pier repair).

### Bridge AMM 3. - Small Number of Bats

If bridge assessment or P/A surveys suggest presence of a small number of bats ( $\leq 5$  – not a colony),<sup>13</sup> and work is conducted during the active season, the following types of bridge work can generally be conducted with the presence of bats:

- above deck work where construction equipment or materials do not extend to the underside of deck where bats may be located (e.g., materials that may drip down to underside of deck), and does not include percussives (vibration) or noise levels above general traffic (e.g., road line painting, wing-wall work).

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<sup>10</sup> Bridge/structure assessments are valid for two years.

<sup>11</sup> Ensure coordination with local Service FO regarding the applicability of P/A surveys for this use.

<sup>12</sup> Coordinate with the local USFWS Field Office for appropriate dates.

<sup>13</sup> This number is far lower than the typical maternity colony size (USFWS 2007, 2014).

- below deck work that is conducted away from roosting bats and does not involve percussives or noise level above general traffic (e.g., wing-wall work, some abutment, beam end, scour, or pier repair).
- any other bridge repair, retrofit, maintenance, and/or rehabilitation (which may include activities with percussives) conducted in the evening while the bats are feeding, starting one hour after sunset, and ending one hour before daylight excluding the hours between 10 p.m. and midnight<sup>14</sup> and keep the light localized.

Bridge AMM 4. If assuming presence of bats, or if bridge assessment or P/A survey suggests presence of bats, ensure suitable roosting habitat is maintained. Suitable roosting sites may be incorporated into the design of a new bridge.

### **Structures**

This category is intended to capture manmade structures that may provide bat roosting or hibernation habitat that are not bridges. They may include, but are not limited to, rest areas, offices, sheds, outbuildings, barns, and parking garages.

**Unless structure assessments<sup>15</sup> have occurred to document that the species are not likely to be present, the following AMMs are REQUIRED, as applicable, in order for projects to NLA the Indiana bat and the NLEB (i.e., projects quality to use the range-wide programmatic informal consultation).**

Structure AMM 1. If the goal of the project is to exclude bats, coordinate with your local USFWS Field Office and follow Acceptable Management Practices for Bat Control Activities in Structures guidance document (White-nose Syndrome Conservation and Recovery Working Group 2015).<sup>16</sup>

Structure AMM 2. If structure maintenance, repair, and/or alteration will be performed **during the winter hibernation period**,<sup>17</sup> determine if work will occur in an area with hibernating bats. If hibernating bats or signs of frequent bat activity are observed, Transportation Agencies and State DOTs will conduct maintenance activity or similar structure alteration in a manner that will not disturb bats using the structure.

Structure AMM 3. If structure maintenance, repair, and/or alteration will be performed **outside of the winter hibernation period**, determine if work will occur in an area with roosting bats. If bat activity or signs of frequent bat activity (e.g., guano stains) are observed, Transportation Agencies and State DOTs will conduct maintenance activity or similar structure alteration in a manner that will not disturb bats using the structure.

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<sup>14</sup> Keeley and Tuttle (1999) indicated peak night roost usage is between 10:00 p.m. to midnight.

<sup>15</sup> Structure assessment for occupied buildings means a cursory inspection for bat use. For abandoned buildings a more thorough evaluation is required (See Appendix D for bridge/structure assessment guidance).

<sup>16</sup> [https://www.whitenosesyndrome.org/sites/default/files/resource/wns\\_nwco\\_amp\\_1\\_april\\_2015\\_0.pdf](https://www.whitenosesyndrome.org/sites/default/files/resource/wns_nwco_amp_1_april_2015_0.pdf)

<sup>17</sup> Coordinate with the local USFWS Field Office for appropriate dates.

Structure AMM 4. If bat activity or signs of frequent bat activity is observed, Transportation Agencies and State DOTs will not remove the structure.

*Note: If there are concerns about human health/safety/property, coordinate with a nuisance wildlife control officer and the local USFWS Field Office.*

### **Hibernacula**

**The following AMM is REQUIRED, as applicable, in order for projects to NLAA the Indiana bat and the NLEB (i.e., projects qualify to use the range-wide programmatic informal consultation).**

Hibernacula AMM 1. For projects located within karst areas, on-site personnel will use best management practices,<sup>18</sup> secondary containment measures, or other standard spill prevention and countermeasures to avoid impacts to possible hibernacula. Where practicable, a 300 foot buffer will be employed to separate fueling areas and other major containment risk activities from caves, sinkholes, losing streams, and springs in karst topography.

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### **AMMs for Programmatic LAA**

**Unless P/A summer surveys<sup>19</sup> document that the species are not likely to be present, the following AMMs will be implemented (as specified below) for projects LAA the Indiana bat and NLEB (i.e., projects qualify to use the range-wide programmatic formal consultation).**

#### **All LAA Projects**

General AMM 1. Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all Transportation Agency environmental commitments, including all applicable AMMs. *{REQUIRED for programmatic NLAA or LAA}*

#### **Lighting**

Lighting AMM 1. Direct temporary lighting away from suitable habitat during the active season. *{REQUIRED for programmatic NLAA or LAA}*

Lighting AMM 2. When installing new or replacing existing permanent lights, use downward-facing, full cut-off<sup>20</sup> lens lights (with same intensity or less for replacement lighting); or for those transportation agencies using the BUG system developed by the Illuminating Engineering Society,<sup>21</sup> the goal is to be as

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<sup>18</sup> Coordinate with the appropriate Service Field Office on recommended best management practices for karst in your State.

<sup>19</sup> P/A summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernacula (contact local USFWS Field Office for appropriate home range) that result in a negative finding requires additional consultation with the local USFWS Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

<sup>20</sup> [http://www.lithonia.com/micro\\_webs/nighttimefriendly/cutoff.asp](http://www.lithonia.com/micro_webs/nighttimefriendly/cutoff.asp)

<sup>21</sup> <http://www.ies.org/pdf/education/ies-fol-addenda-1-%20bug-ratings.pdf> and [http://shop.innovativelight.com/media/cms/BUG\\_ratings\\_3044A7612FA89.pdf](http://shop.innovativelight.com/media/cms/BUG_ratings_3044A7612FA89.pdf)

close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable.  
(REQUIRED for programmatic NLAA OR LAA)

### **Tree Removal**

The word "trees" as used in the AMMs refers to trees that are suitable habitat<sup>22</sup> for each species within their range. The word **documented** means habitat where bats have actually been captured and/or tracked.

Tree Removal AMM 1. Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to the extent practicable to avoid tree removal in excess of what is required to implement the project safely.

*Note: Tree Removal AMM 1 is a minimization measure, the full implementation of which may not always be practicable.*

Tree Removal AMM 2. – Not required for LAA

Tree Removal AMM 3. Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits). {REQUIRED for programmatic NLAA or LAA}

Tree Removal AMM 4. – Not required for LAA

Tree Removal AMM 5. Avoid conducting tree removal within **documented** Indiana bat roosting/foraging habitat<sup>23</sup> or travel corridors from May 1-July 31. {REQUIRED for programmatic LAA}

Tree Removal AMM 6. Minimize tree removal within suitable Indiana bat habitat (no documented habitat) from May 1-July 31 in the following manner. {REQUIRED for programmatic LAA}

- 1) Limit clearing such that all trees can be visually assessed.
- 2a) Conduct visual emergence surveys if trees are greater than or equal to 9 inches diameter at breast height (dbh).
  - If no bats are observed, proceed with clearing the following day (NLAA).
  - If bats observed, modify project to conduct tree removal after August 1 (LAA).
- or
- 2b) If trees are <9 inches dbh, no emergence survey required (LAA).

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<sup>22</sup> See the USFWS's current summer survey guidance for our latest definitions of suitable habitat.

<sup>23</sup> Documented roosting or foraging habitat – for the purposes of this BA, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.

Tree Removal AMM 7. Avoid removing documented NLEB maternity roosts and trees within 150 feet of those roosts from June 1-July 31. *{REQUIRED for programmatic LAA}*

### **Bridges**

**The following Bridge AMMs will be applied (as specified below) for projects LAA the Indiana bat and the NLEB (i.e., projects qualify to use the range-wide programmatic formal consultation) unless one or more of the following criteria apply:**

- the bridge is 1000 feet or more from suitable bat habitat; or
- bridge assessments<sup>24</sup> have occurred to document no signs of bat use; or
- P/A surveys have occurred<sup>25</sup> to document that the bat species are not likely to be present.

Bridge AMM 1. To completely avoid direct effects to roosting bats, perform any bridge removal, replacement, and/or maintenance work during the winter hibernation period<sup>26</sup> unless a hibernating colony of bats is present. Also, follow Bridge AMM 4.

*Note: Bridge AMM 1 is an avoidance measure, the full implementation of which may not be practicable. If bridge removal, replacement, and/or maintenance work must be performed outside of the winter hibernation period, the remaining Bridge AMMs will be applied as specified below.*

Bridge AMM 2. – Not required for LAA

Bridge AMM 3. – Not required for LAA

Bridge AMM 4. If assuming presence of bats, or bridge assessment or P/A surveys suggests presence of bats, ensure suitable roosting habitat is maintained. Suitable roosting sites may be incorporated into the design of a new bridge. *{REQUIRED for programmatic NLAA or LAA}*

### **Structures**

This category is intended to capture manmade structures that may provide bat roosting or hibernation habitat that are not bridges. They may include, but are not limited to, rest areas, offices, sheds, outbuildings, barns, and parking garages.

**Unless structure assessments<sup>27</sup> have occurred to document that the species are not likely to be present, the Structure AMMs will applied (as specified below) for projects LAA the Indiana bat and NLEB (i.e., projects qualify to use the range-wide programmatic formal consultation).**

Structure AMM 1. If the goal of the project is to exclude bats, coordinate with your local USFWS Field Office and follow Acceptable Management Practices for Bat Control Activities in Structures guidance document.<sup>28</sup> *{REQUIRED for programmatic NLAA and LAA Indiana bat, and NLAA NLEB}*

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<sup>24</sup> Bridge/structure assessments are valid for two years.

<sup>25</sup> Ensure coordination with local Service FO regarding the applicability of P/A surveys for this use.

<sup>26</sup> Coordinate with local USFWS Field Office for appropriate dates.

<sup>27</sup> Structure assessment for occupied buildings means a cursory inspection for bat use. For abandoned buildings a more thorough evaluation is required (See Appendix D for bridge/structure assessment guidance).

Structure AMM 2. – Not required for LAA

Structure AMM 3. – Not required for LAA

Structure AMM 4. If bat activity (or signs of frequent bat activity) is observed, Transportation Agencies and State DOTs will not remove the structure. *{REQUIRED for programmatic NLAA and LAA Indiana bat, and NLAA NLEB.}*

*Note: If there are concerns about human health/safety/property, coordinate with a nuisance wildlife control officer and the local USFWS field office.*

### **Hibernacula**

**The following AMM is REQUIRED, as applicable, for projects LAA the Indiana bat and the NLEB (i.e., projects qualify to use the range-wide programmatic formal consultation).**

Hibernacula AMM 1. For projects located within karst areas, on-site personnel will use best management practices,<sup>29</sup> secondary containment measures, or other standard spill prevention and countermeasures to avoid impacts to possible hibernacula. Where practicable, a 300 foot buffer will be employed to separate fueling areas and other major containment risk activities from caves, sinkholes, losing streams, and springs in karst topography. *{REQUIRED for programmatic NLAA or LAA}*

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<sup>28</sup> White-nose Syndrome Conservation and Recovery Working Group 2015, available at:

[https://www.whitenosesyndrome.org/sites/default/files/resource/wns\\_nwco\\_amp\\_1\\_april\\_2015\\_0.pdf](https://www.whitenosesyndrome.org/sites/default/files/resource/wns_nwco_amp_1_april_2015_0.pdf)

<sup>29</sup> Coordinate with the appropriate Service Field Office on recommended best management practices for karst in your State.