

Environmental Assessment and Finding of No Significant Impact/Record of Decision

UPS Flight Forward Drone Package Delivery Operations Wake Forest Baptist Health (WFBH) Routes, Winston-Salem, NC



December 2021

**United States Department of Transportation
Federal Aviation Administration**

Washington, D.C.

FAA MISSION STATEMENT

The FAA's continuing mission is to provide the safest, most efficient aerospace system in the world. We strive to reach the next level of safety and efficiency and to demonstrate global leadership in how we safely integrate new users and technologies into our aviation system. We are accountable to the American public and our aviation stakeholders.

DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Finding of No Significant Impact/Record of Decision
for
Environmental Assessment for UPS Flight Forward
Drone Package Delivery Operations
WFBH Routes, Winston-Salem, NC

Summary

The Federal Aviation Administration (FAA) prepared the attached Environmental Assessment (EA) to analyze the potential environmental impacts of approving the UPS Flight Forward (UPS FF) air carrier Operations Specifications (OpSpecs) to amend its Wake Forest Baptist Health (WFBH) routes in Winston-Salem, North Carolina. UPS FF will deliver packages between three associated healthcare facilities. UPS FF has requested the route amendments to accommodate construction at the hospital. The unmanned aircraft will operate at an en route altitude of approximately 300 feet AGL. The routes are programmed with geo-fencing both horizontally and vertically. UPS FF projects would operate approximately 16 round trip flight operations per operating day between WFBH Meads Hall and Piedmont Plaza, WFBH Meads Hall and Medical Plaza Miller, and Miller Medical Plaza and Piedmont Plaza. The routes measurements will be 0.77 nautical miles (NM), 0.71NM, and 0.31 NM, respectively.

The EA was prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA; 42 United States Code [U.S.C.] § 4321 et seq.); Council on Environmental Quality NEPA implementing regulations (40 Code of Federal Regulations [CFR] parts 1500 to 1508); and FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*.

After reviewing and analyzing available data and information on existing conditions and potential impacts, the FAA has determined the Proposed Action will not significantly affect the quality of the human environment. Therefore, the preparation of an Environmental Impact Statement is not required, and the FAA is issuing this Finding of No Significant Impact (FONSI) and Record of Decision (ROD). The FAA has made this determination in accordance with applicable environmental laws and FAA regulations. The EA is incorporated by reference into this FONSI/ROD.

For any questions or to request a copy of the EA, please email 9-FAA-Drone-Environmental@faa.gov. A copy of the EA may also be viewed on the FAA's website:

https://www.faa.gov/uas/advanced_operations/nepa_and_drones/

Purpose and Need

UPS FF's request to add OpSpecs to its Part 135 air carrier certificate for WFBH requires FAA review and approval. The FAA has a statutory obligation to review UPS FF's request to amend its OpSpecs and determine whether the amendment would affect safety in air transportation or air commerce and whether the public interest requires the amendment.

The purpose of UPS FF's request is for a route amendment to their current UA commercial delivery service at WFBH. UPS FF's requested OpSpec amendment is needed to route around hospital construction so that UPS FF can continue operations they have been flying for more than a year.

See Section 1.3 of the EA for further information.

Proposed Action

In order for UPS FF to amend the OpSpecs in its Part 135 air carrier certificate it must receive an approval from the FAA. The proposed action is the FAA's approval of an amendment to the B050 OpSpec, *Authorized Areas of En Route Operations, Limitations, and Provisions*, to revise the descriptive language about the WFBH routes in the B050 OpSpec reference section titled *Limitations, Provisions, and Special Requirements*. The amendment to this reference section is the proposed federal action for this EA.

See Section 2.1 of the EA for further information.

Alternatives (Section 2.2 of the EA)

Alternatives analyzed in detail in the EA include the proposed action and the no action alternative. Under the no action alternative, the FAA would not issue the approvals necessary to enable UPS FF to conduct UA commercial package delivery operations on the WFBH route. This alternative does not support the stated purpose and need.

Environmental Impacts

The potential environmental impacts from the proposed action and no action alternative were evaluated in the attached EA for each of the environmental impact categories identified in FAA Order

1050.1.F. Section 3 of the attached EA describing the physical, natural, and human environment within the project study area, and identifies those environmental impact categories that are not analyzed in detail, explaining why the proposed action would have no potential effects on those environmental impact categories. Those categories are Air Quality and Climate; Coastal Resources; Farmlands; Hazardous Materials, Solid Waste, and Pollution Prevention; Land Use; Natural Resources and Energy Supply; Environmental Justice, Socioeconomic Impacts, and Children's Environmental Health and Safety Risks; Visual Effects (Light Emissions Only); Water Resources (Wetlands, Floodplains, Groundwater, Surface Waters, and Wild and Scenic Rivers).

Section 3 also provides detailed evaluations of the environmental consequences for each of the remaining environmental impact categories and documents the finding that no significant environmental impacts would result from the proposed action. A summary of the documented findings for each category, including requisite findings with respect to relevant special purpose laws, regulations, and executive orders, is presented below:

- **Biological Resources (including Fish, Wildlife, and Plants)**, EA Section 3.2. There is no significant impact to biological resources. The operations will be taking place within airspace, and typically well above the tree line and away from sensitive habitats. The low number of daily operations and characteristics of the flights are not expected to significantly influence wildlife in the area.

No impacts to bats, insects, birds, fish, reptiles, or terrestrial mammal species are expected. The proposed action would not result in adverse impacts on any species' reproductive success rates, natural mortality rates, non-natural mortality, or ability to sustain the minimum population levels required.
- **Department of Transportation Act, Section 4(f) Resources**, EA Section 3.3. The FAA has determined that infrequent UA overflights as described in the proposed action would not cause substantial impairment to Section 4(f) resources, and would not be considered a constructive use of any Section 4(f) resource. There will be no physical use of Section 4(f) resources; there are no Section 4(f) resources near the routes. Noise and visual effects from UPS FF's occasional overflights are not expected to diminish the activities, features, or attributes of any resources in the study area.
- **Historical, Architectural, Archaeological, and Cultural Resources**, EA Section 3.4. The proposed action has no potential effect on historical, architectural, archaeological, and cultural resources,

and impacts would not be significant. The FAA verified that there are no historic sites within the study area that could be affected by the overflight of UPS FF Unmanned Aircraft (UA).

The nature of UA effects on historic properties is limited to non-physical, reversible impacts (i.e., the introduction of audible and/or visual elements). The number of daily flights that UPS FF is proposing from this location – approximately 16 operations per day – means that any historic or cultural resource would be subject to only a small number of overflights per day, if any.

Additionally, the FAA determined that noise levels along the amended WFBH routes will be well below the 45 DNL threshold minimum change-in-exposure discussed in the 1050.1F Desk Reference.

- **Noise and Noise-Compatible Land Use**, EA Section 3.5. The proposed action is not anticipated to result in any significant changes in the overall noise environment within the affected area. The FAA determined that noise impacts along the WFBH routes will be well below the 45 DNL threshold minimum change-in-exposure discussed in the FAA Order 1050.1F Desk Reference. UPS FF will not be conducting operations at night.
- **Visual Effects (Visual Resources and Visual Character)**, EA Section 3.6. Impacts to visual resources due to the proposed action are not expected to be significant. The proposed action makes no changes to any landforms, or land uses, thus there would be no effect to the visual character of the area. The proposed action involves airspace operations that could result in visual impacts on sensitive areas where the visual setting is an important resource of the property. However, the proposed 16 operations per day would occur in daylight hours, and any visual impacts to people on the ground will be brief and temporary. The entire duration of each flight will last only three to six minutes, depending on the route. Additionally, UPS FF will not be conducting operations on weekends or holidays.

Finding


The FAA finding is based on a comparative examination of environmental impacts for each of the alternatives studied during the environmental review process. The EA discloses the potential environmental impacts for each of the alternatives and provides a full and fair discussion of those impacts. There would be no significant impacts to the natural environment or surrounding population as a result of the proposed action.

The FAA believes the proposed action best fulfills the purpose and need identified in the EA. In contrast, the no action alternative fails to meet the purpose and need identified in the EA. An FAA decision to take the required actions and approvals is consistent with its statutory mission and policies supported by the findings and conclusions reflected in the environmental documentation and this FONSI.

After careful and thorough consideration of the facts contained herein and following consideration of the environmental impacts described, the undersigned finds that the proposed federal action is consistent with existing national environmental policies and objectives as set forth in section 101(a) of the National Environmental Policy Act of 1969 and other applicable environmental requirements and will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 102(2)(C) of NEPA.

Responsible FAA Official:

**KEVIN A.
RAYMOND**

 Digitally signed by KEVIN A.
RAYMOND
Date: 2021.12.17 14:36:53 -06'00'

Kevin Raymond
Acting Manager, General Aviation Operations Section
General Aviation and Commercial Division
Office of Safety Standards, Flight Standards Service

Record of Decision and Order

The FAA recognizes its responsibilities under NEPA, CEQ regulations, and its own directives. Recognizing these responsibilities, I have carefully considered the FAA's goals and objectives in reviewing the aeronautical and environmental aspects of the proposed action to approve UPS FF's OpSpec request to amend the existing WFBH routes in Winston-Salem. Based upon the above analysis, the FAA has determined that the proposed action meets the purpose and need of the proposed project.

Having carefully considered the public safety and operational objectives of the project, as well as being properly advised as to the anticipated environmental impacts of the proposal, under the authority delegated by the Administrator of the FAA, I find the OpSpec amendment reasonably supported, and that it is the type of action that does not require an Environmental Impact Statement under NEPA.

Issued on: 17 December 2021

**KEVIN A.
RAYMOND**

Digitally signed by KEVIN A.
RAYMOND
Date: 2021.12.17 14:37:37 -06'00'

Kevin Raymond
Acting Manager, General Aviation Operations Section
General Aviation and Commercial Division
Office of Safety Standards, Flight Standards Service

Right of Appeal

This FONSI/ROD constitutes a final order taken pursuant to 49 U.S.C. §§40101 et seq., and constitutes a final order of the FAA Administrator which is subject to exclusive judicial review by the Courts of Appeals of the United States in accordance with the provisions of 49 U.S.C. §46110. Any party having substantial interest in this order may apply for a review of the decision by filing a petition for review in the appropriate U.S. Court of Appeals no later than 60 days after the order is issued in accordance with the provisions of 49 U.S.C. §46110.

Contents

1.0	PURPOSE AND NEED	1
1.1	Introduction	1
1.2	Background and Location.....	1
1.2.1	WFBH Route between Meads Hall to Miller Medical Plaza	3
1.2.2	WFBH Route between Miller Medical Plaza and Piedmont Plaza	4
1.3	Purpose and Need.....	5
1.3.1	FAA Purpose and Need	5
1.3.2	UPS FF’s Purpose and Need	6
2.0	PROPOSED ACTION AND ALTERNATIVES	7
2.1	Proposed Action.....	7
2.2	No Action Alternative.....	7
3.0	AFFECTED ENVIRONMENT and ENVIRONMENTAL CONSEQUENCES.....	8
3.1	Resources Not Analyzed in Detail	8
3.2	Biological Resources (Including Fish, Wildlife, and Plants)	10
3.2.1	Regulatory Setting.....	10
3.2.2	Affected Environment.....	11
3.2.3	Environmental Consequences.....	12
3.3	Department of Transportation Act, Section 4(f) Resources	13
3.3.1	Regulatory Setting.....	13
3.3.2	Affected Environment.....	13
3.3.3	Environmental Consequences.....	14
3.4	Historical, Architectural, Archaeological, and Cultural Resources.....	14
3.4.1	Regulatory Setting.....	14
3.4.2	Affected Environment.....	14
3.4.2	Environmental Consequences.....	15
3.5	Noise and Noise-Compatible Land Use.....	15
3.5.1	Regulatory Setting.....	15
3.5.2	Affected Environment.....	16
3.5.3	Environmental Consequences.....	16
3.6	Visual Effects (Visual Resources and Visual Character)	16
3.6.1	Regulatory Setting.....	16
3.6.2	Affected Environment.....	16

3.6.3	Environmental Consequences.....	17
4.0	LIST of PREPARERS and CONTRIBUTORS.....	18
5.0	LIST of AGENCIES CONSULTED	19

Table of Figures

Figure 1	Location of Winston-Salem in the State of North Carolina.....	2
Figure 2	View of WFBH Route Meads Hall to Piedmont Plaza (green).....	3
Figure 3	UPS FF's WFBH Route Meads Hall to Miller Medical Plaza (purple).....	4
Figure 4	UPS FF's Route Miller Medical Plaza to Piedmont Plaza (blue)	5

Appendices

Appendix A:	WFBH IPaC Report
Appendix B:	Tribal and Historic Resource Outreach Letters
Appendix C:	Noise Methodology Memos

1.0 PURPOSE AND NEED

1.1 Introduction

UPS Flight Forward, Inc. (UPS FF) is seeking to amend air carrier Operations Specifications (OpSpecs) to continue conducting unmanned aircraft (UA) commercial package delivery operations at the Wake Forest Baptist Health (WFBH) Medical Center in Winston-Salem, North Carolina. UPS FF will deliver packages, including medical supplies and samples within the Class D airspace of Smith Reynolds Airport (KINT), which is approximately 3.75 miles to the Northeast. UPS FF will operate at an altitude of approximately 300 feet AGL while en route. The routes are programmed with geo-fencing both horizontally and vertically. UPS FF projects it would operate approximately 16 round trip flight operations per operating day between WFBH Meads Hall and Piedmont Plaza, WFBH Meads Hall and Medical Plaza Miller, and Medical Plaza Miller and Piedmont Plaza. The route measurements will be 0.77 nautical miles (NM), 0.71NM, and 0.31 NM, respectively. The operations would occur during daylight hours between Monday and Friday, with no flights on holidays. The approval of the amendment to UPS FF's OpSpecs to modify their existing WFBH routes to accommodate hospital construction is considered a major federal action subject to NEPA review requirements.

This Environmental Assessment (EA) is being prepared by the FAA to evaluate the potential environmental impacts that may result from FAA's approval of the proposed action, which would modify some UA commercial delivery operations in Winston-Salem, North Carolina. The FAA has prepared this EA pursuant to the National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) § 4321 et seq.] and its implementing regulations (40 Code of Federal Regulations (CFR) §§1500-1508)). NEPA requires federal agencies to consider the environmental effects of proposed federal actions and to disclose to decision-makers and the interested public a clear and accurate description of the potential environmental impacts of proposed major federal actions. Under NEPA, federal agencies are required to consider the environmental effects of a proposed action, the reasonable alternatives to the proposed action, and a no action alternative (assessing the potential environmental effects of not implementing the proposed action). The FAA has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 1050.1F Desk Reference.

1.2 Background and Location

In 2012, Congress first charged the FAA with integrating unmanned aircraft systems (UAS) into the National Airspace System (NAS).¹ The FAA has engaged in a phased, incremental approach to integrating UAS into the NAS and continues to work toward full integration of UAS into the NAS. Part of that approach involves providing safety review and oversight of proposed operations to begin commercial UA delivery in the NAS.

Over the past five years UPS FF has been working under various FAA programs, including the UAS Integration Pilot Program (IPP)² and the BEYOND program,³ as well as FAA's established processes to bring certificated commercial UA delivery into practice. Participants in these programs are among the

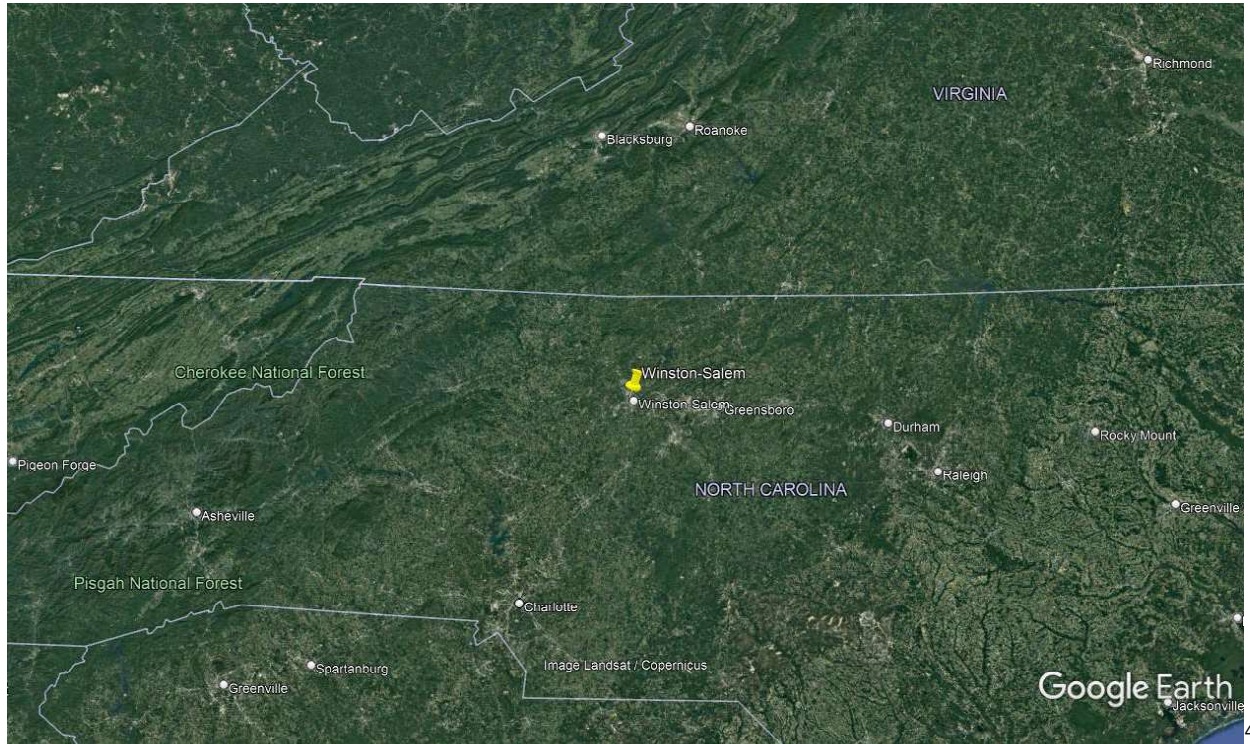
¹ 49 U.S.C. 44802; FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, Sec. 332. 126 Stat. 11, 73 (2012).

² The UAS IPP was announced on October 25, 2017 via a Presidential Memorandum, which has the force and effect of law on executive agencies. https://www.faa.gov/uas/programs_partnerships/completed/integration_pilot_program/

³ https://www.faa.gov/uas/programs_partnerships/beyond/

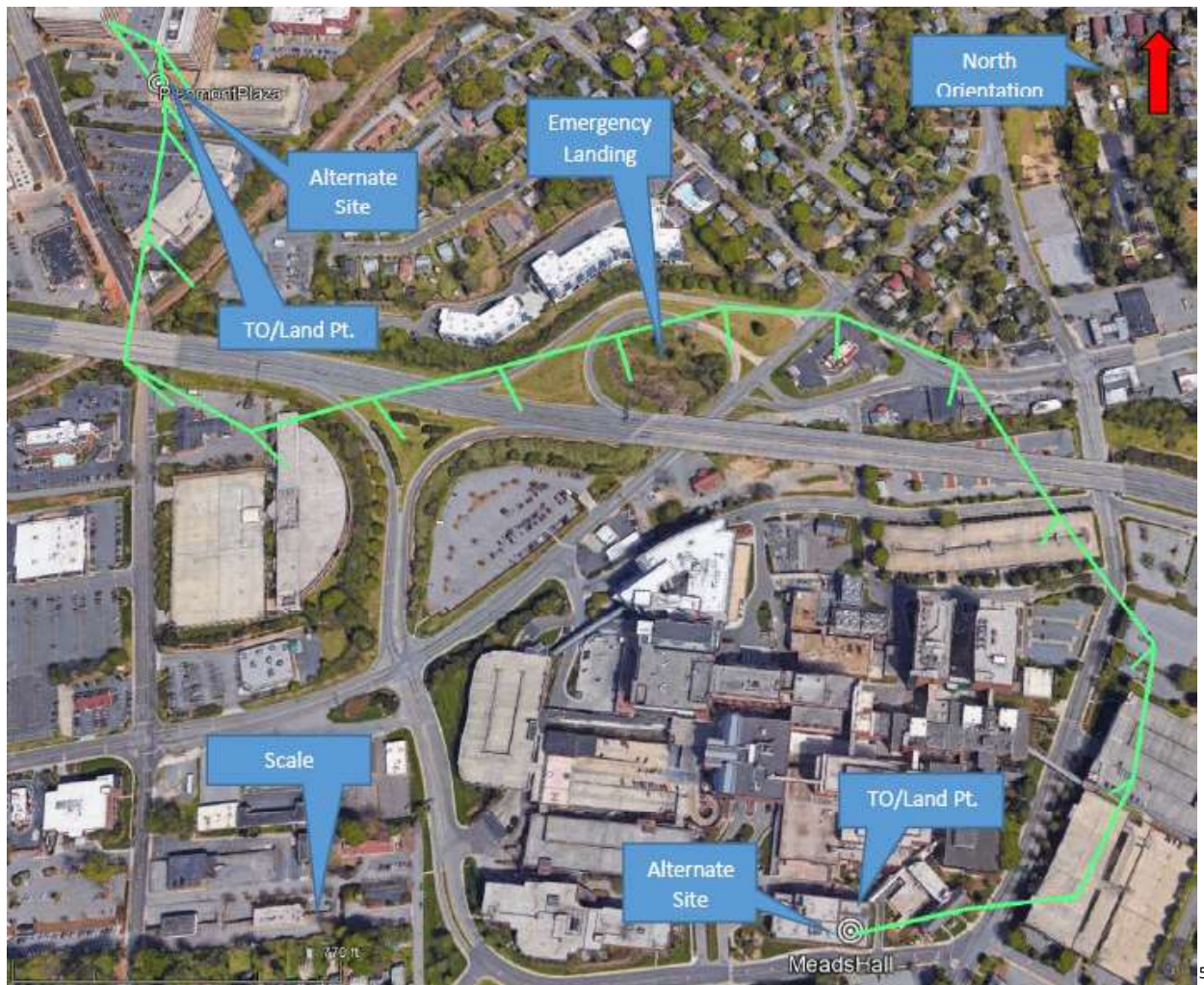
first to prove their concepts, including package delivery by UA, through the use of current regulations and exemptions and waivers from some of these regulatory requirements.

UPS FF was one of the first to obtain an FAA Part 135 certificate, which allows it to carry the property of another for compensation or hire beyond visual line of sight. UPS FF has a standard Part 135 air carrier certificate and that certificate contains a stipulation that operations must be conducted in accordance with the provisions and limitations specified in its OpSpecs. UPS FF's current request for an OpSpec to amend the WFBH routes would allow UPS FF to continue providing UAS delivery service to its healthcare customer at this operating area. The location of Winston-Salem within North Carolina is shown in Figure 1 below.



The study area is shown in Figures 2 through 4 below. The first WFBH route, shown in green in Figure 2, will be from Meads Hall to Piedmont Plaza and the distance will be 0.77 nautical miles (NM). This route segment is considerably different from the previous route between Meads Hall and Piedmont Plaza, as it circles around the WFBH campus to accommodate hospital construction activities. The route will be used to carry packages from Meads Hall to Piedmont Plaza.

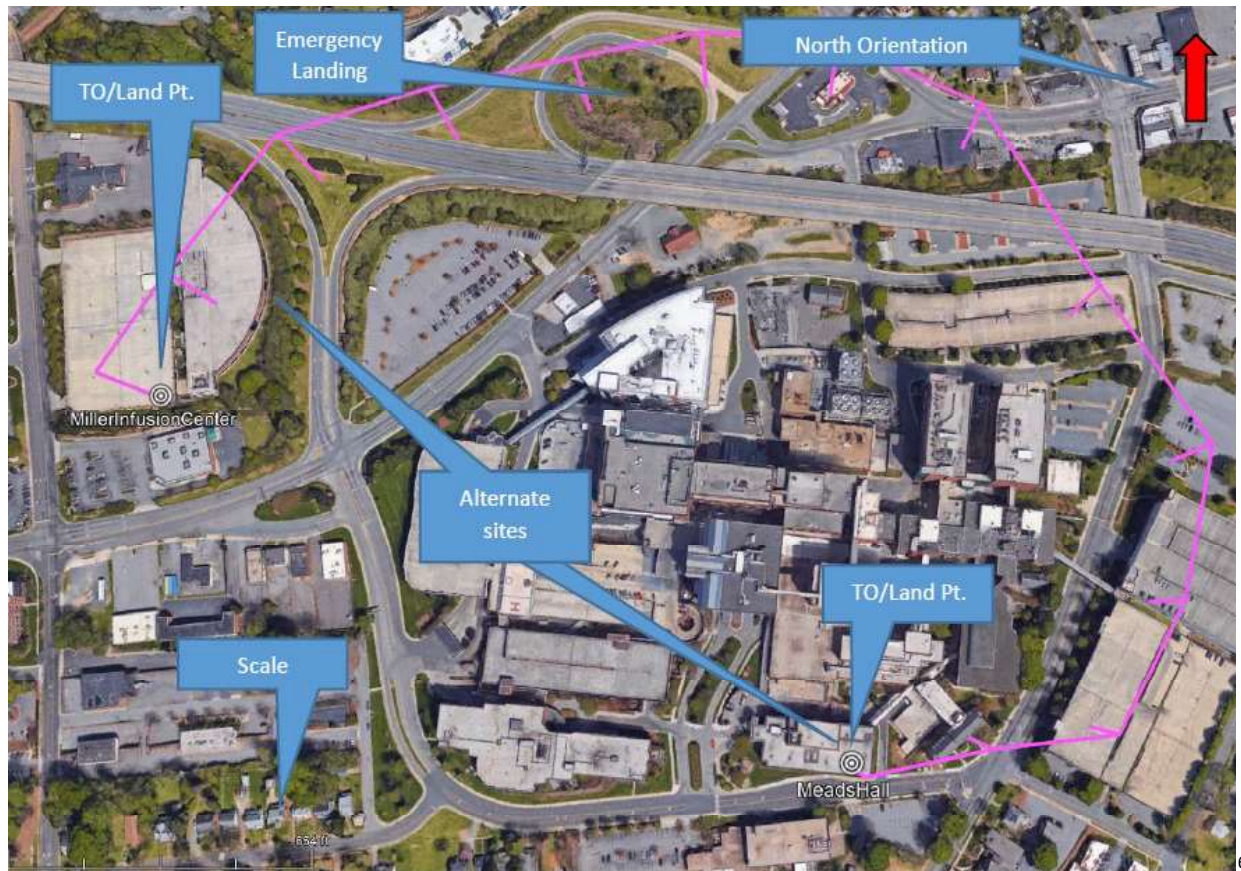
⁴ Image: Google Earth, as modified by the FAA



1.2.1 WFBH Route between Meads Hall to Miller Medical Plaza

The second WFBH route, shown in Figure 3, will be from Meads Hall to Miller Medical Plaza and the distance will be 0.77 nautical miles (NM) as shown in purple. This route is generally identical to the Meads Hall to Piedmont Plaza route described above, except at the last segment where it approaches the Miller Medical Plaza. The route will be used to carry packages from Meads Hall to Miller Medical Plaza.

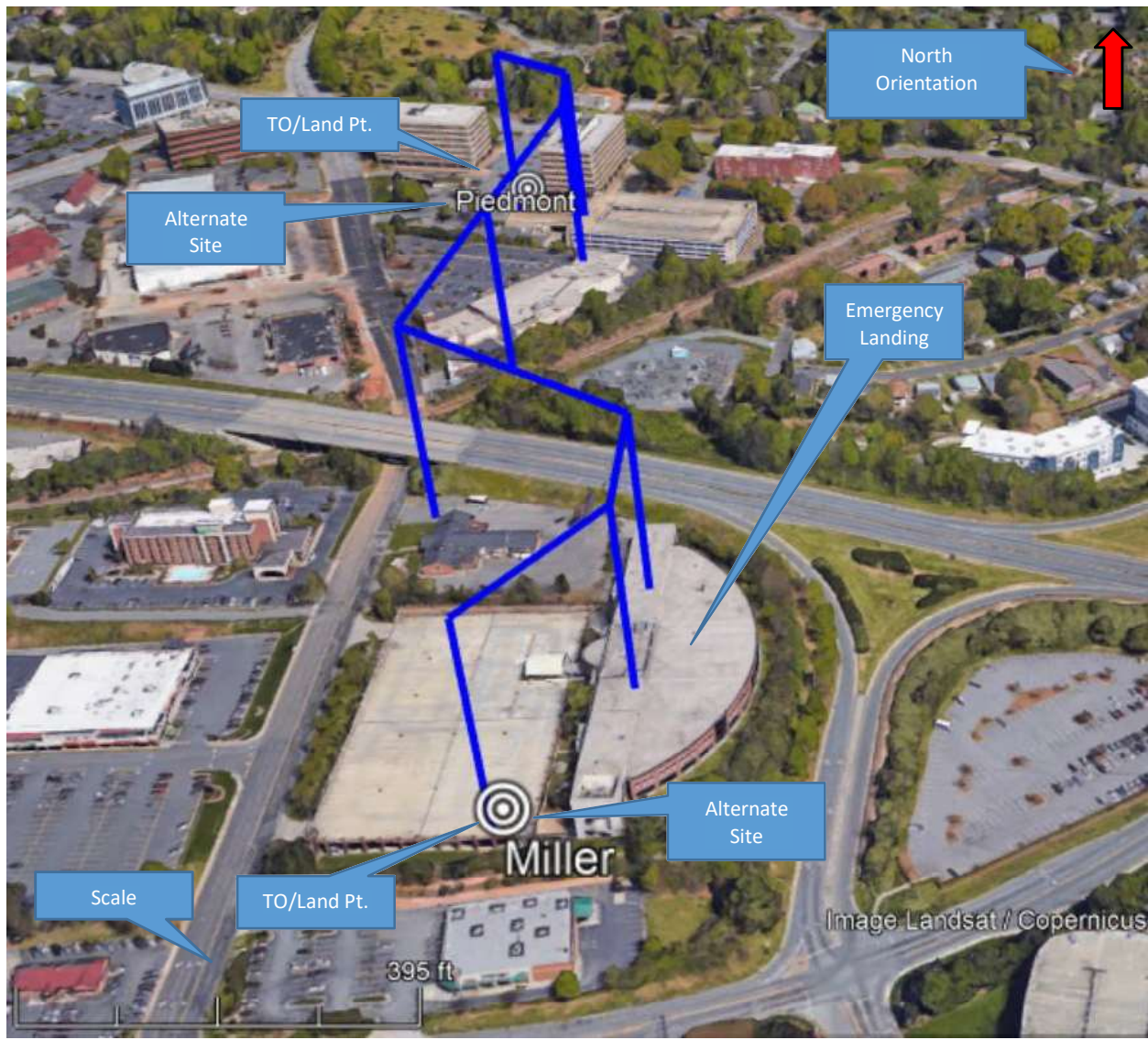
⁵ Image: UPS FF



1.2.2 WFBH Route between Miller Medical Plaza and Piedmont Plaza

The third WFBH route, shown in Figure 4, will be from Miller Medical Plaza to Piedmont Plaza and the distance will be 0.31 nautical miles (NM) shown in blue. This route is generally identical to the last segment of the Meads Hall to Piedmont Plaza route as shown in Figure 2 above. The route will be used to carry packages from Miller Medical Plaza to Piedmont Plaza.

⁶ Image: Google Earth, as modified by the FAA



7

Figure 4 UPS FF's Route Miller Medical Plaza to Piedmont Plaza (blue)

1.3 Purpose and Need

As described in the FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, the Purpose and Need section of an EA briefly describes the underlying purpose and need for the proposed federal action. It presents the problem being addressed and describes what the FAA is trying to achieve with the proposed action.

1.3.1 FAA Purpose and Need

The FAA amendment and issuance of the OpSpecs is the FAA approval that will allow UA commercial delivery operations to continue on the WFBH routes around the hospital construction.

⁷ Image: Google Earth, as modified by the FAA

The FAA has specific statutory and regulatory obligations related to its issuance of a Part 135 certificate and the related OpSpecs. The FAA is required to issue an operating certificate to an air carrier when it “finds, after investigation, that the person properly and adequately is equipped and able to operate safely under this part and regulations and standards prescribed under this part.” 49 U.S.C. §44705. An operating certificate also specifies “terms necessary to ensure safety in air transportation; and (2)...the places to and from which, and the airways of the United States over which, a person may operate as an air carrier.” *Id.* Also included in air carrier certificates is a stipulation that the air carrier’s operations must be conducted in accordance with the provisions and limitations specified in OpSpecs. 14 CFR §119.5 (g), (l). The regulations also specify that a Part 135 certificate holder may not operate in a geographical area unless its OpSpecs specifically authorize the certificate holder to operate in that area. 14 CFR 119.5(j). The regulations implementing Section 44705 specify that an air carrier’s approved OpSpecs must include, among other things, “authorization and limitations for route and areas of operations.” 14 CFR §119.49(a)(6). An air carrier’s OpSpecs may be amended at the request of an operator if the FAA “determines that safety in air transportation or air commerce is affected and the public interest requires the amendment.” 14 CFR §119.51(a); see also 49 U.S.C. §44709. After making this determination, FAA must take an action on the OpSpec amendment.

1.3.2 UPS FF’s Purpose and Need

The purpose of UPS FF’s request is for a route amendment to their current UA commercial delivery service in Winston-Salem. UPS FF’s requested amendment is needed to route around hospital construction so that UPS FF can continue operations they have been flying for over a year at WFBH.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

UPS FF has requested an FAA OpSpecs Part 135 air carrier amendment. The OpSpec is the FAA approval that would allow continued existing operations to accommodate construction at the hospital along three new routes. The proposed UA commercial delivery operations would take place in the community of Winston-Salem in North Carolina. The UA has a maximum takeoff weight of 28 pounds, including a payload of 4.4 pounds. It is a quadcopter that uses electric power from rechargeable lithium ion batteries. The aircraft includes a parachute safety system that can be deployed in cases of emergency.

The B050 OpSpec, *Authorized Areas of En Routes Operations, Limitations, and Provisions*, includes a reference section titled Limitations, Provisions, and Special Requirements. The amendment to this reference section – to revise the descriptive language about the changes to the WFBH routes, including the specific location and operational profile proposed in UPS FF’s request – is the proposed federal action for this EA. The OpSpecs amendment will restrict UPS FF to this particular location; any future expansion beyond the authorization and limitations for route and areas of operations described in the amended OpSpecs will require additional OpSpec amendments from the FAA and will receive appropriate NEPA review at that time.

UPS FF projects operations for all routes with the UA will fly at approximately 300 feet AGL en route and land at the delivery site with flights lasting approximately three to six minutes depending on the route flown. The operator would conduct approximately 16 deliveries (32 flights) per day during daylight hours, between Monday and Friday, with no flights on holidays. Night operations would not be conducted under the proposed action.

2.2 No Action Alternative

The alternative to the proposed action is the no action alternative, where FAA would not issue the approvals necessary, including the amendment to the OpSpecs, to allow UPS FF to conduct UA delivery operations on the WFBH routes to accommodate construction. This alternative does not support the stated purpose and need. However, it was retained as required by CEQ regulations (40 CFR 1502.14(c)).

3.0 AFFECTED ENVIRONMENT and ENVIRONMENTAL CONSEQUENCES

This chapter provides a description of the environmental resources that would be affected by the proposed action as required by the CEQ regulations and FAA Order 1050.1F. The level of detail provided in this chapter is commensurate with the importance of the impact on these resources (40 CFR § 1502.15). The general study area for each resource is the entire area within Figure 2 in this EA. As required by FAA Order 1050.1F, this EA presents an evaluation of impacts for the environmental impact categories listed below.

- Air Quality
- Biological Resources (including Fish, Wildlife, and Plants)
- Climate
- Coastal Resources
- Department of Transportation Act, Section 4(f) Resources
- Farmlands
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Historical, Architectural, Archaeological, and Cultural Resources
- Land Use
- Natural Resources and Energy Supply
- Noise and Compatible Land Use
- Socioeconomic, Environmental Justice, and Children’s Environmental Health and Safety Risks
- Visual Effects (including Light Emissions)
- Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

For each of the resources covered in this chapter, the following information is provided:

- Regulatory Setting
- Affected Environment
- Environmental Consequences

3.1 Resources Not Analyzed in Detail

This EA does not analyze potential impacts on the following environmental impact categories in detail, for the reasons explained below:

- **Air Quality and Climate** – The UA is battery-powered will not generate emissions that could result in air quality impacts or climate impacts. Electricity consumed for battery charging at the nest will be minimal, especially for the limited scope of these operations. Electricity consumed for the proposed action is not expected to cause a significant impact to the electrical grid.

- **Coastal Resources** –The proposed operation would not directly affect any shorelines or change the use of shoreline zones and be inconsistent with any NOAA-approved state Coastal Zone Management Plan (CZMP) since there are no coastal zones or shorelines in the area of operations.
- **Farmlands** –The proposed action will not involve the development or disturbance of any land regardless of use, nor would it have the potential to convert any farmland to non-agricultural uses.
- **Hazardous Materials, Solid Waste, and Pollution Prevention** –The proposed action will not result in any construction or development, or any physical disturbances of the ground. Therefore, the potential for impact in relation to hazardous materials, pollution prevention, and solid waste is not anticipated. Additionally, each UPS FF UA is made from recyclable materials, and UPS FF has stated that all aircraft and associated equipment, including the battery, will be returned to the manufacturer at their respective end of life for proper disposition in accordance with 14 CFR Part 43.
- **Land Use** – The proposed action will not involve any changes to existing, planned, or future land uses within the area of operations.
- **Natural Resources and Energy Supply** – The proposed action will not require the need for unusual natural resources and materials, or those in short supply. UPS FF’s aircraft will be battery powered and will not consume fuel resources.
- **Environmental Justice, Socioeconomic Impacts, and Children’s Environmental Health and Safety Risks** – The proposed action will not result in significant impacts to any of the environmental impact categories as discussed in the next sections, and will not result in disproportionate impacts to any EJ populations that may occur in the study area. The proposed action will not involve acquisition of real estate, relocation of residents or community businesses, disruption of local traffic patterns, loss in community tax base, or changes to the fabric of the community. Executive Order (EO) 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires Federal agencies to ensure that children do not suffer disproportionately from environmental or safety risks. The proposed action will not affect products or substances that a child would be likely to come into contact with, ingest, use, or be exposed to, and would not result in environmental health and safety risks that could disproportionately affect children. The operating area was reviewed and there are no schools, day care centers, parks, or playgrounds located along the specific routes. Additionally, UPS FF’s ability to avoid flying near schools, day care centers, parks, or playgrounds if present when they are developing their routes would reduce any potential environmental health or safety impacts to children.
- **Visual Effects (Light Emissions Only)** – The proposed action will not result in significant light emission impacts because flights will be limited to daytime flights only.
- **Water Resources (Wetlands, Floodplains, Groundwater, Surface Waters, and Wild and Scenic Rivers)** –The proposed operation will not result in the construction of facilities and would therefore not encroach upon areas designated as navigable waters or wetlands. The proposed operation will not encroach upon areas designated as a 100-year flood event area as described by the Federal Emergency Management Agency (FEMA). The proposed action will not result in any changes to existing discharges to water bodies, create a new discharge that would result in

impacts to surface waters, or modify a water body. The proposed action does not involve land acquisition or ground disturbing activities that would withdraw groundwater from underground aquifers or reduce infiltration or recharge to ground water resources through the introduction of new impervious surfaces. There are no surface waters within the study area that could be impacted by the proposed action. The proposed action would not foreclose or downgrade the Wild, Scenic, or Recreational river status of a river or river segment included in the Wild and Scenic River System. There are no river segments within the study area.

3.2 Biological Resources (Including Fish, Wildlife, and Plants)

3.2.1 Regulatory Setting

Biological resources include plant and animal species and their habitats, including special status species (federally listed or state-listed threatened or endangered species, species proposed for listing, species that are candidates for federal listing, marine mammals, and migratory birds) and environmentally sensitive or critical habitat. Biological resources provide aesthetic, recreational, and economic benefits to society.

Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 [16 U.S.C. § 1531 et seq.] requires the evaluation of all federal actions to determine whether a proposed action is likely to jeopardize any proposed, threatened, or endangered species or proposed or designated critical habitat. Critical habitat includes areas that will contribute to the recovery or survival of a listed species. Federal agencies are responsible for determining if an action “may affect” listed species, which determines whether formal or informal consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) is needed. If the FAA determines that the action will have no effect on listed species, consultation is not required. If the FAA determines that the action may affect listed species, consultation with the USFWS must be initiated.

A significant impact to federally-listed threatened and endangered species would occur when the USFWS or NMFS determines that the proposed action would be likely to jeopardize the continued existence of a federally-listed threatened or endangered species, or would be likely to result in the destruction or adverse modification of federally-designated critical habitat. An action need not involve a threat of extinction to federally listed species to meet the NEPA standard of significance. Lesser impacts including impacts on non-listed or special status species could also constitute a significant impact.

Migratory Birds

The Migratory Bird Treaty Act (16 U.S.C. §§ 703-712) protects migratory birds, including their nests, eggs, and parts, from possession, sale, purchase, barter, transport, import, export, and take. The USFWS is the federal agency responsible for the management of migratory birds as they spend time in habitats of the U.S. For purposes of the Migratory Bird Treaty Act, “take” is defined as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect” (50 CFR § 10.12). The Migratory Bird Treaty Act applies to migratory birds identified in 50 CFR § 10.13 (defined hereafter as “migratory birds”).

Bald and Golden Eagles

The Bald and Golden Eagle Protection Act prohibits anyone from “taking” a bald or golden eagle, including their parts, nests, or eggs, without a permit issued by the USFWS. Implementing regulations (50 CFR § 22), and USFWS guidelines as published in the National Bald Eagle Management Guidelines,

provide for additional protections against “disturbances.” Similar to take, “Disturb” means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, injury to an eagle or causes either a decrease in its productivity or nest abandonment due to a substantial interference with breeding, feeding, or sheltering. A permitting process provides limited exceptions to the Bald and Golden Eagle Protection Act’s prohibitions. The USFWS has issued regulations for the permitting process in 50 CFR § 22. The National Bald Eagle Management Guidelines state that aircraft should remain at least 1,000 feet from known bald eagle nests during the breeding season unless operated by a trained wildlife biologist.

3.2.2 Affected Environment

This section describes the existing biological environment of the WFBH routes area. Winston-Salem is located within the Southern Outer Piedmont Ecoregion. The Southern Outer Piedmont ecoregion comprises a transitional area between the mostly mountainous ecological regions of the Appalachians to the northwest and the relatively flat coastal plain to the southeast. The aircraft takeoff and landing locations are in lots that are already developed. UPS FF’s aircraft will not touch the ground in any other place than the take-off and landing points (except during emergency landings).

The proposed action would take place over mostly suburban and commercially-developed properties. The area along the routes may provide habitat for small mammals, reptiles, amphibians, and volant species such as bats, songbirds, and insects. The WFBH routes would be close to roads and human activity centers and would not be located in a place where “quiet” is a unique attribute of the habitat.

Special Status Species

Federally Listed Species. The potential for impacts to federally-listed species was assessed using the USFWS Information for Planning and Consultation (IPaC) map tool and reports. The study area for federally-listed species covered the same study area shown in Figure 2 of this EA. The IPaC report is included as Appendix A.

Based on the IPaC report, one bat species, the threatened Northern Long-eared Bat (*Myotis septentrionalis*), has the potential to occur within the operating area. In addition, the Monarch Butterfly (*Danaus plexippus*), a candidate for federal listing, has the potential to occur in the operating area. There are no ESA-listed bird species in the operating area.

There is no critical habitat within the operating area.

State Listed Species. The North Carolina Wildlife Resources Commission lists the amphibians, birds, crustacean, fish, mammals, mollusks, and reptiles considered as state endangered, state threatened, or state special concern within the state of North Carolina⁸.

Migratory Birds

Migratory bird species found within the operating area will vary throughout the year. Many bird species protected under the Migratory Bird Treaty Act may inhabit the small wooded areas near the WFBH campus all year long. During certain weeks in the spring and fall, hundreds of species of songbirds, raptors, and waterfowl may potentially pass through the operating area.

⁸ North Carolina Department of Wildlife Resources available at:
<https://www.ncwildlife.org/Portals/0/Conserving/documents/WildlifeDiversity/ETSC-2021-UPDATE.pdf>

The IPaC report identifies eight Birds of Conservation Concern (BCC) that could occur in the operating area, along with information on the likelihood and seasons during which they may be nesting in the area, including the Red-headed Woodpecker (*Melanerpes erythrocephalus*).

3.2.3 Environmental Consequences

The operations will be taking place within airspace, and typically well above the tree line and away from sensitive habitats. The low number of daily operations and nature of the flights are not expected to significantly influence wildlife in the area.

Special Status Species

The threatened Northern Long-eared Bat has the potential to occur within the operating area. While this bat species may occur within the operating area, it is unlikely to encounter the UA as proposed operations will be limited to daytime hours. In the event that flights do overlap with dawn or dusk bat emergence, bats may exhibit disturbance behaviors and change their flight paths to avoid UAs.⁹ However, research also suggests that UAs have “minimal impact on bat behavior”¹⁰ and do not appear to be disturbed by UAs.¹¹ As a result, the FAA has determined that the proposed action will cause no significant impact to bats.

The Monarch Butterfly, a candidate for federal listing, has the potential to occur in the operating area. This species, as well as other insects, could be struck by UAs enroute to delivery. Information regarding UAs impacts on insects is limited and there have been no widespread negative impacts identified in the scientific literature. Therefore, based on the information available and the limited scale of operations, the action is not expected to have significant impacts to insect populations.

Protected bird species may display disturbance behaviors towards drones, such as fleeing or attack maneuvers; however, due to the limited scale of operations and the altitude of overflights, no impacts to state protected bird species are expected.

Migratory Birds

It is unlikely for any of the Birds of Conservation Concern listed in the IPaC report to be nesting in the roadways and commercial buildings that underlie most of the routes in the proposed action at WFBH. Additionally, it is unlikely for the proposed UA flights to cause adverse impacts to any other migratory birds that may be present in the study area. The UA will be taking off and landing from built-up environments, and will generally stay at 300 feet AGL while en route.

The FAA’s analysis finds that the proposed action is not expected to cause any of the following impacts:

- A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area;
- Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats; or

⁹ Fewer bat passes are detected during small, commercial drone flights. Available: <https://www.nature.com/articles/s41598-021-90905-0>. Accessed: October 21, 2021

¹⁰ The Chirocopter: A UAV for recording sound and video of bats at altitude. Methods in Ecology and Evolution. Available: <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/2041-210X.12992>. Accessed: October 21, 2021

¹¹ Autonomous drones are a viable tool for acoustic bat surveys. Available: <https://www.biorxiv.org/content/10.1101/673772v1.full.pdf>. Accessed: October 21, 2021

- Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or
- Adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required.

3.3 Department of Transportation Act, Section 4(f) Resources

3.3.1 Regulatory Setting

Section 4(f) of the DOT Act [codified at 49 U.S.C. § 303(c)] protects significant publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. Section 4(f) states that, subject to exceptions for de minimis impacts: "The Secretary may approve a transportation program or project requiring the use of [4(f) resources]...only if—(1) there is no prudent and feasible alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use."

The term "use" includes both direct or physical and indirect or "constructive" impacts to Section 4(f) resources. Direct use is the physical occupation or alteration of a Section 4(f) property or any portion of a Section 4(f) property. A constructive use does not require direct physical impacts or occupation of a Section 4(f) resource. A constructive use would occur when a proposed action would result in substantial impairment of a resource to the degree that the protected activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished. The determination of use must consider the entire property and not simply the portion of the property used for a proposed project.¹²

Section 4(f) resources where a quiet setting is a generally recognized feature or attribute receive special consideration. In assessing constructive use, FAA Order 1050.1F, Appendix B, page B-11, requires that the FAA "...must consult all appropriate federal, state, and local officials having jurisdiction over the affected Section 4(f) properties when determining whether project-related impacts would substantially impair the resources." Parks, recreation areas, and wildlife refuges that are privately owned are not subject to Section 4(f) provisions.

A significant impact would occur pursuant to NEPA when a proposed action either involves more than a minimal physical use of a section 4(f) property or is deemed a "constructive use" based on an FAA determination that the proposed action would substantially impair the 4(f) property, and mitigation measures do not eliminate or reduce the effects of the use below the threshold of significance.

3.3.2 Affected Environment

The FAA used data from federal, state, and other public-access sources to identify Section 4(f) resources within the operating area. The FAA identified no properties within the WFBH study area that meet the definition of a Section 4(f) resource, such as public parks, recreation areas, and historic sites. There are no wildlife or waterfowl refuges within the operating area.

Although there are no Section 4(f) resources within the study area, the FAA has previously consulted with the North Carolina SHPO to determine whether historic and traditional cultural properties would be

¹² Federal Highway Administration (FHWA) Section 4(f) Policy Paper. (Note: FHWA regulations are not binding on the FAA; however, the FAA may use them as guidance to the extent relevant to aviation projects. See 1050.1F Desk Reference, Section 5.1.) Available: <https://www.environment.fhwa.dot.gov/legislation/section4f/4fpolicy.pdf>. Accessed: February 2, 2021

affected by the initial routes, as discussed in the next section devoted to Historical, Architectural, Archaeological, and Cultural Resources. The FAA identified the nearest historic property as being more than 1,000 feet from the proposed routes.

3.3.3 Environmental Consequences

The FAA has determined that infrequent UA overflights as described in the proposed action will not cause substantial impairment to Section 4(f) resources that could occur in the study area, and would not be considered a constructive use of any Section 4(f) resource. There will be no physical use of Section 4(f) resources. The FAA determined that noise levels along the amended WFBH routes will be well below the 45 DNL threshold minimum change-in-exposure discussed in the 1050.1F Desk Reference. Noise and visual effects from UPS FF's occasional overflights are not expected to diminish the activities, features, or attributes of any resources in the study area.

3.4 Historical, Architectural, Archaeological, and Cultural Resources

3.4.1 Regulatory Setting

Section 106 of the National Historic Preservation Act (NHPA) of 1966 [54 U.S.C. § 306108] requires federal agencies to consider the effects of their undertakings on properties listed or eligible for listing in the National Register of Historic Places (NRHP). This includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meets the NRHP criteria. Regulations related to this process are contained in 36 CFR Part 800, Protection of Historic Properties. Compliance with Section 106 requires consultation with the State Historic Preservation Officer (SHPO) and applicable other parties, including Indian tribes.

Major steps in the Section 106 process include identifying the Area of Potential Effects (APE), identifying historic and cultural resources within the APE, and consulting with the SHPO and any Tribal Historic Preservation Office (THPO) that is identified as potentially having traditional cultural interests in the area. A factor to consider in assessing significant impact is when an action would result in a finding of adverse effect through the Section 106 process. However, under 36 CFR § 800.8(a), a finding of adverse effect on a historic property does not necessarily result in a significance finding under NEPA.

3.4.2 Affected Environment

The APE for the proposed action is the same as the WFBH study area where UPS FF is planning to conduct UA package deliveries, as shown in Figure 2 in this EA. The FAA identified no historic sites that could be affected by the proposed action. The FAA visited the North Carolina SHPO website to search for historic properties, and identified the nearest property as being more than 1,000 feet from the proposed routes.

For the approval of the initial routes on a short term basis and then the continuance of the routes on a long term basis, in accordance with 36 CFR § 800.4(a)(1), the FAA consulted with the North Carolina SHPO and one THPO who may potentially attach religious or cultural significance to resources in the area the APE.¹³ The tribe that was consulted was the Catawba Indian Nation. The FAA sent a consultation letter to the North Carolina SHPO in June 2020 informing the SHPO that FAA had determined that the initial short term action appeared to support a determination of no potential to effect, but that FAA had initiated consultation in part to get better understanding of the potential

¹³ FAA utilized the Housing and Urban Development (HUD) Tribal Directory Assessment Tool (TDAT) to identify tribes with ancestral ties or other interests within the WFBH APE.

effects of UAS operations on historic properties. Your office's July 29, 2020 response agreed with FAA's determination. In September 2020, FAA sent a second consultation letter to the North Carolina SHPO for a continuation of the operations on a long-term basis and did not receive a response to that letter. The FAA also sent consultation letters to the Catawba Indian Tribe in June and September, 2020, and did not receive any responses or objections from the tribe. No traditional cultural resources were identified by the FAA during the analysis for this project. The FAA's tribal and historic outreach letters are included as Appendix B.

3.4.2 Environmental Consequences

The nature of UA effects on historic properties is limited to non-physical, reversible impacts (i.e., the introduction of audible and/or visual elements). The number of daily flights that UPS FF is proposing from this location – 16 round trip flight operations per day – means that any historic or cultural resource would be subject to only a small number of overflights per day, if any. The FAA determined that noise levels along the amended WFBH routes will be well below the 45 DNL threshold minimum change-in-exposure discussed in the 1050.1F Desk Reference.

Based on the information available and FAA's knowledge with respect to the level of environmental impacts from UAS operations, FAA has determined that the requested approval has no potential to effect historic properties. FAA notified the SHPO of its determination. A copy of this letter is included in Appendix B. Additionally, there would be no known effect on known cultural resources from this action.

3.5 Noise and Noise-Compatible Land Use

3.5.1 Regulatory Setting

Aircraft noise is often the most noticeable environmental effect associated with any aviation project. Several federal laws, including the Aviation Safety and Noise Abatement Act of 1979, as amended (49 U.S.C. §§ 47501-47507) regulate aircraft noise. Through 14 CFR Part 36, the FAA regulates noise from aircraft.

FAA Order 1050.1F, Appendix B, Paragraph B-1.3 requires the FAA to identify the location and number of noise sensitive areas that could be significantly impacted by noise. As defined in Paragraph 11-5b of Order 1050.1F, page 11-3, a noise sensitive area is "[a]n area where noise interferes with normal activities associated with its use. Normally, noise sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas, areas with wilderness characteristics, wildlife refuges, and cultural and historical sites."

Sound is measured in terms of the decibel (dB), which is the ratio between the sound pressure of the sound source and 20 micropascals, which is nominally the threshold of human hearing. Various weighting schemes have been developed to collapse a frequency spectrum into a single dB value. The A-weighted decibel, or dBA, corresponds to human hearing accounting for the higher sensitivity in the mid-range frequencies.

To comply with NEPA requirements, the FAA has issued requirements for assessing aircraft noise in FAA Order 1050.1F, Appendix B. FAA's primary noise metric for aviation noise analysis is the yearly Day-Night Average Sound Level (DNL) metric. The DNL metric is a single value representing the logarithmically average aircraft sound level at a location over a 24-hour period, with a 10 dB adjustment added to noise events occurring from 10:00 p.m. and up to 7:00 a.m. the following morning. A significant noise impact is defined in Order 1050.1F as an increase in noise of DNL 1.5 dB or more at or above 65 dB DNL noise exposure or a noise exposure at or above the 65 dB level due to a DNL 1.5 dB or greater increase.

3.5.2 Affected Environment

Human perception of noise depends on a number of factors, including overall noise level, number of noise events, the extent of audibility above the background ambient noise level, and frequency content (pitch). UA noise generally has high frequency content which can be described as a lawnmower-type pitch.

Existing noise levels in the WFBH operating area are expected to be well below 65 DNL. The ambient noise environment throughout the operating area is affected mainly by automobile traffic. Occasional general aviation (GA) aircraft operations or overflights of commercial aircraft may be perceptible to people on the ground.

3.5.3 Environmental Consequences

In November 2021, the FAA conducted an analysis to determine the estimated maximum noise emissions from the Matternet M2-V9 UA by using noise emissions from a similar small UA quadcopter. Based on this analysis, and the limited number of operations being proposed by UPS FF, the FAA determined that noise levels along the amended WFBH routes will be well below the 45 DNL threshold minimum change-in-exposure discussed in the 1050.1F Desk Reference. See Appendix XXX for additional information.

3.6 Visual Effects (Visual Resources and Visual Character)

3.6.1 Regulatory Setting

Visual resources and visual character impacts deal with the extent to which the proposed action would result in visual impacts to resources in the WFBH study area. Visual impacts can be difficult to define and evaluate because the analysis is generally subjective, but are normally related to the extent that the proposed action would contrast with, or detract from, the visual resources and/or the visual character of the existing environment. In this case, visual effects would be limited to the introduction of a visual intrusion – a UA in flight – which could be out of character with the suburban or natural landscapes.

The FAA has not developed a visual effects threshold of significance similar to noise impacts. Factors FAA considers in assessing significant impacts include the degree to which the action would have the potential to: (1) affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources; (2) contrast with the visual resources and/or visual character in the study area; or (3) block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.

3.6.2 Affected Environment

The proposed action would take place primarily over commercially-developed properties. As noted in Section 3.3, *DOT Act Section 4(f) Resources*, there are no public parks, recreation areas, or historic properties that could be valued for aesthetic attributes within the study area.

Once a package is loaded and the flight plan has been confirmed by UPS FF's Remote Pilot in Command (RPIC), the UA takes off from its designated pad. The aircraft quickly rises to its cruising altitude of approximately 300 feet above ground level (AGL) for its en routes flight. The aircraft may fly up to 400 feet AGL when needed. Each flight will last approximately three to six minutes depending on the route.

3.6.3 Environmental Consequences

The proposed action makes no changes to any landforms, or land uses, thus there would be no effect to the visual character of the area. The proposed action involves airspace operations that could result in visual impacts on sensitive area's such as Section 4(f) properties where the visual setting is an important resource of the property. FAA determined there were no Section 4(f) properties are located in the study area. Further, the short duration that each UA flight could be seen from any particular resource in the operating area, and the low number of proposed flights per day, would minimize any potential for significant visual impacts.

4.0 LIST of PREPARERS and CONTRIBUTORS

Table 4-1 lists the principal preparers, reviewers, and contributors to this EA.

Table 4-1. List of Preparers and Contributors

Name and Affiliation	Years of Industry Experience	EA Responsibility
Mike Millard, Flight Standards, FAA Aviation Safety	40	Flight Standards Environmental Specialist and Document Review
Christopher Couture, FAA Aviation Safety	15	Program Management, Environmental Analysis, and Document Review
Shawna Barry, FAA Office of Environment and Energy	15	NEPA SME, Biological Resources, and Document Review
Sean Doyle, FAA Office of Environment and Energy	16	Noise Analysis and Document Review
Contractor Preparers		
Jodi Jones, FAA Aviation Safety, Marton Technologies, Inc.	12	NEPA SME, Research, and Document Review
Brad Thompson, FAA Aviation Safety, Science Applications International Corporation, Inc. (SAIC)	7	NEPA SME, Research, and Document Review

5.0 LIST of AGENCIES CONSULTED

State Agencies

North Carolina Department of Natural and Cultural Resources

Tribes

Catawba Indian Nation

Appendix A
WFBH IPaC Report

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Forsyth County, North Carolina



Local office

Asheville Ecological Services Field Office

☎ (828) 258-3939

📠 (828) 258-5330

160 Zillicoa Street
Asheville, NC 28801-1082

<http://www.fws.gov/nc-es/es/countyfr.html>

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME

STATUS

Northern Long-eared Bat *Myotis septentrionalis***Threatened**

Wherever found

No critical habitat has been designated for this species.

<http://ecos.fws.gov/ecp/species/9045>

Reptiles

NAME

STATUS

Bog Turtle *Clemmys muhlenbergii***SAT**

No critical habitat has been designated for this species.

<http://ecos.fws.gov/ecp/species/6962>

Insects

NAME

STATUS

Monarch Butterfly *Danaus plexippus***Candidate**

Wherever found

No critical habitat has been designated for this species.

<http://ecos.fws.gov/ecp/species/9743>

Flowering Plants

NAME

STATUS

Schweinitz's Sunflower *Helianthus schweinitzii***Endangered**

Wherever found

No critical habitat has been designated for this species.

<http://ecos.fws.gov/ecp/species/3849>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Black-billed Cuckoo *Coccyzus erythrophthalmus*

Breeds May 15 to Oct 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<http://ecos.fws.gov/ecp/species/9399>

Cerulean Warbler *Dendroica cerulea*

Breeds Apr 28 to Jul 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<http://ecos.fws.gov/ecp/species/2974>

Kentucky Warbler *Oporornis formosus*

Breeds Apr 20 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prairie Warbler *Dendroica discolor*

Breeds May 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prothonotary Warbler *Protonotaria citrea*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker *Melanerpes erythrocephalus*

Breeds May 10 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Rusty Blackbird *Euphagus carolinus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Wood Thrush *Hylocichla mustelina*

Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (🟡)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

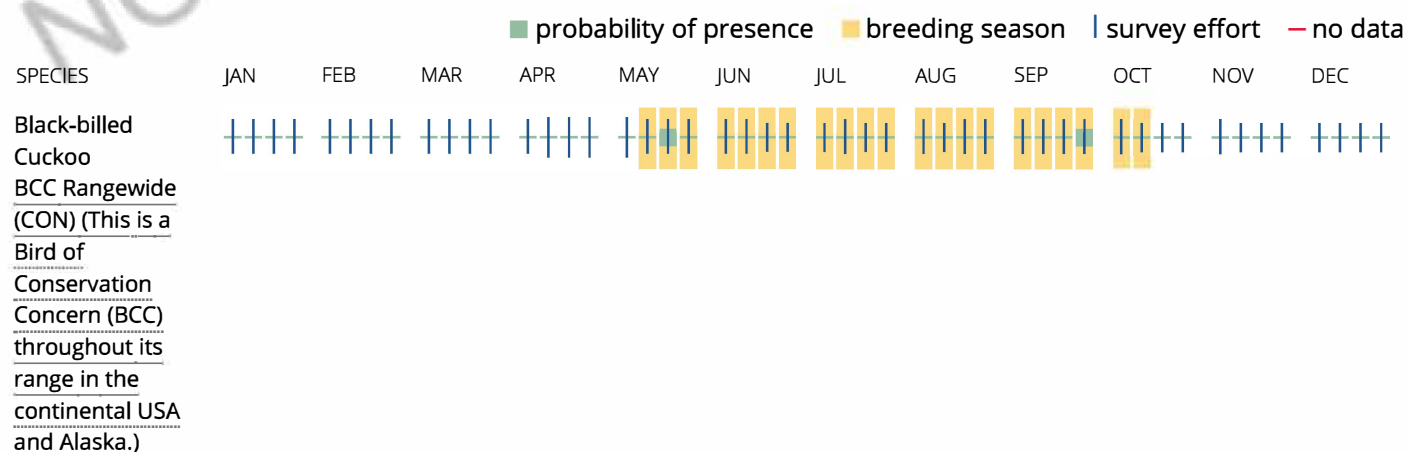
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Rusty Blackbird
BCC - BCR (This is a
Bird of
Conservation
Concern (BCC) only
in particular Bird
Conservation
Regions (BCRs) in
the continental
USA)



Wood Thrush
BCC Rangewide
(CON) (This is a
Bird of
Conservation
Concern (BCC)
throughout its
range in the
continental USA
and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting

point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Appendix B

Tribal and Historic Resource Outreach Letters



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Safety

800 Independence Ave., S.W.
Washington, DC 20591

September 25, 2020

Ms. Renee Gledhill-Early
State Historic Preservation Office
4617 Mail Service Center
Raleigh, NC 27699-4617

Via electronic submission to environmental.review@ncdcr.gov

Dear Ms. Gledhill-Early:

The purpose of this letter is to inform you of a proposal under consideration by the Federal Aviation Administration (FAA) for the approval of a Certificate of Waiver and/or Exemption for Matternet M2-V9 Unmanned Aircraft System (UAS) operations in Winston-Salem, NC. The FAA has determined that this proposed action is a Federal undertaking as defined in 36 CFR § 800.16 (y). Therefore, the FAA is initializing consultation with the State Historic Preservation Officer (SHPO) pursuant to § 800.11 (d).

This route is currently being flown under emergency circumstances in support of the global COVID-19 pandemic requiring immediate actions that precluded following standard NEPA processes by the FAA. We sent a previous letter on June 30, 2020 for the emergency action, and we received your no potential effect letter (ER 20-1508) on July 29, 2020. This route is going to become a long-term operation beyond the short-term emergency action, requiring us to consult with you for the change.

Proposed Activity Description

The Federal Aviation Administration (FAA) has been asked to approve waivers and/or exemptions to aeronautical regulations, thereby approving the UAS operation in the area depicted below. FAA approval of the UAS operation in the area is an undertaking subject to regulations pursuant to the National Historic Preservation Act.

The UAS operation will operate two routes in Winston-Salem, NC. The first route originates from Wake Forrest Baptist Health (WFBH) Main Campus to Medical Plaza, and would travel up to 0.21 miles (see attached route map) and would be expected to last approximately one minute. The second route also originates from WFBH Main campus and travels to Piedmont Plaza, and would travel up to 0.49 miles (see attached route map) and would be expected to last approximately one to two minutes. Both destination locations are part of the WFBH Hospital network. The operator would conduct an estimated maximum of 18 flights along the route daily, M-F (except holidays) at a planned operating altitude of 300 feet above ground

level (AGL). All flights would be during daylight hours. The dimension of the UAS area defines the Area of Potential Effect (APE). According to the National Park Service online database of the National Register of Historic Places, there are no registered historical places within the proposed APE. The UAS operation will have no affects to the ground.

Consultation

The FAA seeks concurrence from the SHPO of its no historic properties affected [§ 800.11 (d)] determination for the proposed UAS route. Your response over the next 30 days will greatly assist us in incorporating your concerns into our environmental review of the operation.

If you have any comments or questions or need additional information regarding the proposed operation, please do not hesitate to contact Mr. Mike Millard, in writing at: FAA, AFS-800, 800 Independence Ave., S.W., Washington, D.C. 20591; by telephone: (202) 267-7906; or by email: 9-AWA-AVS-AFS-ENVIRONMENTAL@faa.gov.

Sincerely,



Mark E. Giron
Aviation Safety
Manager, General Aviation Operations Branch,
Flight Standards Service

Enclosure



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Safety

800 Independence Ave., S.W.
Washington, DC 20591

September 25, 2020

Chief William Harris
Catawba Indian Nation
996 Avenue of the Nations
Rock Hill, SC 29730

Dear Chief Harris:

The purpose of this letter is to initiate formal government-to-government consultation regarding issuance by the Federal Aviation Administration (FAA) for the approval of a Certificate of Waiver and/or Exemption for Matternet M2-V9 Unmanned Aircraft System (UAS) operations in Winston-Salem, NC. We wish to solicit your views regarding potential effects on tribal interests in the area.

This route is currently being flown under emergency circumstances in support of the global COVID-19 pandemic requiring immediate actions that precluded following standard NEPA processes by the FAA. We sent a previous letter on June 30, 2020 for the emergency action. This route is going to become a long-term operation beyond the short-term emergency action, requiring us to consult with you for the change.

Proposed Activity Description

The Federal Aviation Administration (FAA) has been asked to approve waivers and/or exemptions to aeronautical regulations, thereby approving the UAS operation in the area depicted below. FAA approval of the UAS operations in the area is an undertaking subject to regulations pursuant to the National Historic Preservation Act.

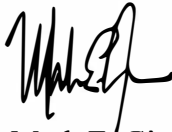
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Consultation

The FAA is soliciting the opinion of the tribe(s) concerning any tribal lands, or sites of religious or cultural significance that may be affected by the proposed operation area. Your response over the next 30 days will greatly assist us in incorporating your concerns into our environmental review of the operation.

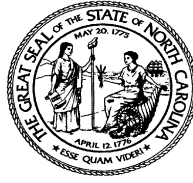
If you have any comments or questions or need additional information regarding the proposed operation, please do not hesitate to contact Mr. Mike Millard, in writing at: FAA, AFS-800, 800 Independence Ave., S.W., Washington, D.C. 20591; by telephone: (202) 267-7906; or by email: 9-AWA-AVS-AFS-ENVIRONMENTAL@faa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark E. Giron', with a stylized, cursive script.

Mark E. Giron
Aviation Safety
Manager, General Aviation Operations Branch,
Flight Standards Service

Enclosure



**North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office**

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary Susi H. Hamilton

Office of Archives and History
Deputy Secretary Kevin Cherry

July 29, 2020

Mike Millard
General Aviation Operations Branch, AFS-830
800 Independence Avenue Southwest
Washington, D.C. 20591

Mike.Millard@faa.gov

Re: Two unmanned drone routes, Wake Forest Baptist Health Main Campus to Medical Plaza Miller & Wake Forest Baptist Health Main Campus to Piedmont Plaza, Winston-Salem, Forsyth County, ER 20-1508

Dear Mr. Millard:

Thank you for your email of July 1, 2020, concerning the above project.

We have conducted a review of the project and are aware of no potential effect to historic properties. Therefore, we have no comment on the project as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

A handwritten signature in blue ink that reads "Renee Gledhill-Earley".

 Ramona Bartos, Deputy
State Historic Preservation Officer



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Safety

800 Independence Ave., S.W.
Washington, DC 20591

June 30, 2020

Ms. Renee Gledhill-Early
State Historic Preservation Office
4617 Mail Service Center
Raleigh, NC 27699-4617

Via electronic submission to environmental.review@ncdcr.gov.

Dear Ms. Gledhill-Early:

The purpose of this letter is to inform you of actions taken by the Federal Aviation Administration (FAA) under emergency procedures to allow operations of Unmanned Aircraft Systems (UAS) to deliver medical or other essential supplies without exposing the recipient to human contact, in accordance with social distancing measures in support of the COVID-19 pandemic response. The FAA has received a request to issue a Certificate of Waiver to UPS Flight Forward (UPS FF) for operation of small UAS (under 55 pounds) along two routes in Winston-Salem, NC. This is a waiver of certain provisions of 14 CFR part 107 to allow UPS FF UAS to be flown in a manner not otherwise authorized by the regulation, namely operating over people, with adequate mitigations to establish the required level of safety within the national airspace system. UAS may be operated during daylight hours, Monday through Friday, until October 31, 2020, or until all COVID-related restrictions on travel, business, and mass gatherings have been lifted for the State of North Carolina, whichever date occurs first.

The circumstances precluded following standard FAA environmental review processes, including procedures under Section 106 of the National Historic Preservation Act and its implementing regulations at 36 CFR part 800. The FAA has determined that this proposed action is a Federal undertaking as defined in 36 CFR § 800.16 (y). Due to the novelty of UAS technology, we have not previously determined whether this type of operation is an activity with the potential to affect historic properties. Therefore, we are initiating consultation with you as well as with the Catawba Indian Nation pursuant to emergency procedures in 36 CFR § 800.12. Although circumstances do not permit a seven day consultation period to occur before the FAA issues this waiver, please note that the FAA can cancel the waiver or exemption and reissue it with modified or new terms to avoid, minimize or mitigate any adverse effects that may be identified subsequently through consultation.

Location and Description of Activity

UPS FF, as a participant in the North Carolina DOT Integration Pilot Program (IPP), will operate two routes in Winston-Salem, NC. The first route originates from Wake Forrest Baptist Health (WFBH) Main Campus to Medical Plaza Miller, and would travel up to 0.21 miles (see attached route map) and would be expected to last approximately one minute. The second route also originates from WFBH Main Campus and travels to Piedmont Plaza, and would travel up to 0.49 miles (see attached route map) and would be expected to last approximately one to two minute. Both destination locations are part of the WFBH Hospital network. The operator would conduct an estimated maximum of 18 flights along the route daily, M-F (except holidays) at a planned operating altitude of 300 feet AGL. All flights would be during daylight hours.

We wish to solicit your views regarding potential effects on historic interests in the area that may be affected by the proposed routes. The FAA has limited experience with the effect of this type of UAS operation on tribal properties. The nature of small UAS operations generally limit effects to non-physical, reversible impacts (i.e., the introduction of audible and/or visual elements). That limited effect and the short-term duration of the waiver appear to support a determination of “no potential effect.” However, the FAA is aware of the possibility that certain types of historic properties could be particularly or uniquely sensitive to such effects, even if they are of short duration. Therefore, we are seeking your input under the emergency procedures in 36 CFR § 800.12 to identify and assess effects on any such resources in the areas overflown by these UAS.

Your response will greatly assist us in better understanding the potential effects of small UAS operations of this type on properties of religious or cultural significance to your tribe.

If you have any questions or need additional information regarding the proposed project, please do not hesitate to contact Mr. Mike Millard, in writing at: FAA, AFS-800, 800 Independence Ave., S.W., Washington, D.C. 20591; by telephone: (202) 267-7906; or by email: 9-AWA-AVS-AFS-ENVIRONMENTAL@faa.gov.

Sincerely,



Mark E. Giron
Aviation Safety
Manager, General Aviation Operations Branch,
Flight Standards Service



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Safety

800 Independence Ave., S.W.
Washington, DC 20591

June 30, 2020

William Harris
Chief
Catawba Indian Nation
996 Avenue of the Nations
Rock Hill, SC 29730

Dear Chief Harris:

The purpose of this letter is to inform you of actions taken by the Federal Aviation Administration (FAA) under emergency procedures to allow operations of Unmanned Aircraft Systems (UAS) to deliver medical or other essential supplies without exposing the recipient to human contact, in accordance with social distancing measures in support of the COVID-19 pandemic response. The FAA has received a request to issue a Certificate of Waiver to UPS Flight Forward (UPS FF) for operation of small UAS (under 55 pounds) along two routes in Winston-Salem, NC. This is a waiver of certain provisions of 14 CFR part 107 to allow UPS FF UAS to be flown in a manner not otherwise authorized by the regulation, namely operating over people, with adequate mitigations to establish the required level of safety within the national airspace system. UAS may be operated during daylight hours, Monday through Friday, until October 31, 2020, or until all COVID-related restrictions on travel, business, and mass gatherings have been lifted for the State of North Carolina, whichever date occurs first.

The circumstances precluded following standard FAA environmental review processes, including procedures under Section 106 of the National Historic Preservation Act and its implementing regulations at 36 CFR part 800. The FAA has determined that this proposed action is a Federal undertaking as defined in 36 CFR § 800.16 (y). Due to the novelty of UAS technology, we have not previously determined whether this type of operation is an activity with the potential to affect historic properties. Therefore, we are initiating consultation with you as well as with the North Carolina State Historic Preservation Officer (SHPO) pursuant to emergency procedures in 36 CFR § 800.12. Although circumstances do not permit a seven day consultation period to occur before the FAA issues this waiver, please note that the FAA can cancel the waiver or exemption and reissue it with modified or new terms to avoid, minimize or mitigate any adverse effects that may be identified subsequently through consultation.

Location and Description of Activity

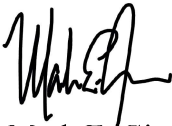
UPS FF, as a participant in the North Carolina DOT Integration Pilot Program (IPP), will operate two routes in Winston-Salem, NC. The first route originates from Wake Forrest Baptist Health (WFBH) Main Campus to Medical Plaza Miller, and would travel up to 0.21 miles (see attached route map) and would be expected to last approximately one minute. The second route also originates from WFBH Main Campus and travels to Piedmont Plaza, and would travel up to 0.49 miles (see attached route map) and would be expected to last approximately one to two minute. Both destination locations are part of the WFBH Hospital network. The operator would conduct an estimated maximum of 18 flights along the route daily, M-F (except holidays) at a planned operating altitude of 300 feet AGL. All flights would be during daylight hours.

We wish to solicit your views regarding potential effects on tribal interests in the area, particularly on any sites of religious or cultural significance that may be affected by the proposed routes. The FAA has limited experience with the effect of this type of UAS operation on tribal properties. The nature of small UAS operations generally limit effects to non-physical, reversible impacts (i.e., the introduction of audible and/or visual elements). That limited effect and the short-term duration of the waiver appear to support a determination of “no potential effect.” However, the FAA is aware of the possibility that certain types of properties, such as some traditional cultural properties, could be particularly or uniquely sensitive to such effects, even if they are of short duration. Therefore, we are seeking your input under the emergency procedures in 36 CFR § 800.12 to identify and assess effects on any such resources in the areas overflown by these UAS.

Your response will greatly assist us in better understanding the potential effects of small UAS operations of this type on properties of religious or cultural significance to your tribe.

If you have any questions or need additional information regarding the proposed project, please do not hesitate to contact Mr. Mike Millard, in writing at: FAA, AFS-800, 800 Independence Ave., S.W., Washington, D.C. 20591; by telephone: (202) 267-7906; or by email: 9-AWA-AVS-AFS-ENVIRONMENTAL@faa.gov.

Sincerely,



Mark E. Giron
Aviation Safety
Manager, General Aviation Operations Branch,
Flight Standards Service

Enclosure

CC: *(via electronic mail)*

Wenonah George Haire, DMD, Tribal Historic Preservation Officer
Caitlin Rogers, Tribal Historic Preservation Officer Assistant



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Safety

800 Independence Ave., S.W.
Washington, DC 20591

Ms. Renee Gledhill-Early
State Historic Preservation Office
4617 Mail Service Center
Raleigh, NC 27699-4617

Via electronic submission to environmental.review@ncdcr.gov

Dear Ms. Gledhill-Early:

In June and September 2020, the Federal Aviation Administration (FAA) contacted the North Carolina State Historic Preservation Office regarding FAA's approval of waivers and operating exemptions and authorities that would permit UPS Flight Forward (UPS FF) to operate Unmanned Aircraft Systems (UAS) commonly called drones to provide delivery service, in the short term and then the long term, to its healthcare customer at the Wake Forest Baptist Health (SFBH) Medical Center in Winston-Salem, North Carolina. In June, we informed you that the FAA had determined that the initial short term action appeared to support a determination of no potential to effect, but we initiated consultation in part to get better understanding of the potential effects of UAS operations on historic properties. Your office's July 29, 2020 response agreed with FAA's determination. In September 2020, FAA sent a second consultation letter for a continuation of the operations on a long-term basis. We did not receive a response to that letter.

We have again been asked to approve exemptions and authorities for UPS FF to modify its existing UAS routes to accommodate hospital construction. Based on a review of the route modifications as well as our increasing knowledge with respect to the level of environmental impacts from drone operations, FAA has determined that this new approval has no potential to effect historic properties.

We are providing you with this notice of our determination as a courtesy and to keep you up to date on developments in UAS activity at WFBH. FAA expects that drone operations will continue to grow and that we all will continue to learn more about this emerging technology. FAA would be amenable to trying to answer any questions you may have generally on this new technology.

If you have any questions or need additional information regarding the proposed project, please do not hesitate to contact Mr. Mike Millard, in writing at: FAA, AFS-800, 800 Independence Ave., S.W., Washington, D.C. 20591; by telephone: (202) 267-7906; or by email: 9-AWA-AVS-AFS-ENVIRONMENTAL@faa.gov.

Sincerely,

KEVIN A.
RAYMOND

Digitally signed by
KEVIN A. RAYMOND
Date: 2021.12.17
12:18:03 -06'00'

Kevin Raymond
Aviation Safety
Acting Manager, General Aviation Operations,
Flight Standards Service

Appendix C
Noise Methodology Memos



Federal Aviation Administration

Memorandum

Date: November 12, 2021

To: Don Scata, Office of Environment and Energy (AEE)

From: Mike Millard, Flight Standards (AFS), General Aviation Operations Branch, AFS-830

Subject: Environmental Assessment (EA) Noise Methodology Approval Request for Matternet M2 V9 Operations in Winston-Salem, NC Wake Forest Baptist Health (WFBH) Routes

AFS requests AEE approval of the noise methodology to be used for an EA for UPS Flight Forward (UPSFF) operations using the Matternet M2 V9 unmanned aircraft system (UAS) in Winston-Salem, NC Wake Forest Baptist Health (WFBH) Routes as described in the UPSFF Request Letter – WFBH Routes (Relocation) submitted to FAA on August 16, 2021, for the route change to avoid construction at the medical center.

Project Description

AFS is evaluating UPSFF relocation route request to avoid hospital construction for the approval of 3 routes in the Winston-Salem Operational Area to be added to the Operations Specifications they hold in conjunction with Air Carrier Operating Certificate 1UPA261Q. These new routes will replace the current two upon approval to facilitate the necessary move from Main Campus (C-Deck) to Meads Hall. The routes follow the same pre-planned path near the Main Campus. UPSFF will deliver packages, including medical supplies and samples. The routes are programmed with Geo-Fencing both horizontally and vertically, as a safety mitigation.

Route measurements are as follows:

- Meads to Piedmont: .77 NM
- Meads to Miller: .71 NM
- Miller to Piedmont: .31 NM.

The M2 V9, with a maximum payload of roughly 3.9 lbs, will quickly rise to an approximate cruising altitude of 300 feet AGL, fly to the delivery location, and descend to land. Each flight is expected to last approximately three minutes. UPS Flight Forward is proposing to conduct 16 round trip flights per day, Monday-Friday, no holidays.

Noise Methodology

AFS is proposing to use the noise impact methodology developed in the AEE study on the “Estimation of Matternet M2v8 flight operations noise impact” that was produced in April 2020 using input from Volpe’s “Noise Measurement Report: Unconventional Aircraft - Choctaw Nation of Oklahoma; July 2019 FAA UAS National Airspace Integration Pilot Program” report, in which noise was measured and analyzed from the GD28X – a UAS that is similar in design but significantly heavier than the M2 V9.

AFS references one of the study’s most significant conclusions, which was that “even at 16 deliveries per day (32 overflights), the exposure levels for the GD28X – and presumably for the Matternet vehicle – are below the 45 DNL threshold minimum change-in-exposure discussed in the FAA 1050.1F Desk Reference”.

Using the methodology and preliminary results from the AEE study, AFS concludes that noise levels from the M2 V9 in the proposed relocation routes in Winston-Salem, NC Wake Forest Baptist Health (WFBH), will not be significant and an EA is applicable.



Federal Aviation Administration

Memorandum

Date: November 18, 2021

To: Mike Millard, Flight Standards (AFS), General Aviation Operations Branch, AFS-830

From: Don Scata, Manager, Noise Division, Office of Environment and Energy (AEE-100)

Subject: Environmental Assessment (EA) Noise Methodology Approval Request for Matternet M2 V9 Operations at Wake Forest Baptist Health Main Campus, Winston Salem, NC

The Office of Environment and Energy (AEE) has reviewed the proposed non-standard noise modeling methodology to be used for UPS Flight Forward operations using the Matternet M2 V9 unmanned aircraft system (UAS) at Wake Forest Baptist Health Main Campus, Winston-Salem, NC along three proposed replacement routes to facilitate the relocation of operations from the Main Campus (C-Deck) to Meads Hall. This request is in support of an Environmental Assessment (EA) for the replacement of existing routes to avoid construction in conjunction with existing UPS Flight Forward Part 135 operations at Wake Forest Baptist Health Main Campus, Winston-Salem, NC.

The Proposed Action is to use the M2 V9 to carry supplies originating along three sets of proposed routes as a replacement for existing routes originating from the Main Campus (C-Deck) to avoid hospital construction. The first route originates at Meads Hall and terminates at Piedmont Plaza with an estimated distance of 0.77 nautical miles. The second route also originates at Meads Hall but terminates at Medical Plaza Miller with an estimated distance of 0.71 nautical miles. The third route originates at Medical Plaza Miller and terminates at Piedmont Plaza, with a distance of 0.31 nautical miles. For all routes, the UAS will fly approximately at 300 ft AGL en route and land at the delivery site with flights lasting approximately 3 minutes. The operator would conduct approximately 16 deliveries (32 flights) per day during daylight hours.

As the FAA's approved noise models and methodologies are not currently suitable for analysis of the Proposed Action, in accordance with FAA Order 1050.1F, all non-standard noise analysis in support of the noise impact analysis for the National Environmental Policy Act (NEPA) must be approved by AEE. This letter serves as AEE's response to the method proposed in the white paper "Estimation of Matternet M2v8 flight operations noise impact" dated April 21, 2020, and authored by Dr. Natalia Sizov and the Expanded Operations Table in the white paper.

The proposed methodology appears to be adequate for this analysis; therefore, AEE concurs with the methodology proposed for this project. Please understand that this approval is limited to this particular Environmental Review, location, vehicle, and circumstances. Any additional projects using this or other methodologies or variations in the vehicle will require separate approval.