Federal Aviation Administration

Finding of No Significant Impact/ Record of Decision for Environmental Assessment for Drone Package Delivery in Kansas City, MO, and Kansas City, KS

May 2026

DEPARTMENT OF TRANSPORTATION | Federal Aviation Administration
Washington, D.C.

Notice of Availability of the Final Environmental Assessment and Finding of No Significant Impact/Record of Decision for Amazon Prime Air Package Delivery Operations in Kansas City, KS, and Kansas City, MO

The Federal Aviation Administration (FAA) hereby gives Notice of Availability (NOA) for this Final Environmental Assessment (EA) and Finding of No Significant Impact/Record of Decision (FONSI/ROD) following the FAA's evaluation of the potential environmental effects of the FAA decision to authorize Amazon Prime Air to conduct commercial drone delivery service in Kansas City, KS, and Kansas City, MO.

Amazon Prime Air is seeking to amend its air carrier Operation Specifications (OpSpec) and other FAA approvals necessary to introduce commercial drone delivery operations in Kansas City, KS, and Kansas City, MO. The FAA's approval of the amended OpSpecs is considered a major federal action under NEPA and requires a NEPA review.

The Final EA has been prepared in accordance with FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures*. The Final EA reflects the consideration of comments received during the public comment period for this EA from January 26, 2026, through February 24, 2026.

The Final EA and FONSI/ROD are available to view/download electronically at:
https://www.faa.gov/uas/advanced_operations/nepa_and_drones

CONTACT INFORMATION: For any questions or to request a copy of the EA, please contact: 9-FAA-Drone-Environmental@faa.gov.

This EA becomes a federal document when evaluated, signed, and dated by the Responsible FAA Official.

Responsible FAA Official:

DEREK W HUFTY Digitally signed by DEREK W HUFTY Date: 2026.05.12 13:17:48 -04'00' Date: _____

Derek Hufty
Manager, General Aviation and Commercial Branch (AFS-750)
Emerging Technologies Division
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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration
Finding of No Significant Impact and Record of Decision
for
Environmental Assessment for Amazon Prime Air Proposed Drone Package Delivery in Kansas City KS-MO

Summary

The Federal Aviation Administration (FAA) prepared the attached final Environmental Assessment (EA) to analyze the potential environmental impacts of amending the Operations Specifications (OpSpec) of Amazon Prime Air (Prime Air), per its 49 United States Code (U.S.C.) Section 44807 exemption and Part 135 certificate that allow Prime Air to carry the property of another for compensation or hire beyond visual line of sight (BVLOS) using its it MK30 Unmanned Aircraft System (UAS).

Amazon is seeking to amend its OpSpec to expand its unmanned aircraft (UA; also referred to as a drone) commercial package delivery operations in Kansas City to include:

- SMO1 – Located at 4001 East 149th Street, Kansas City, MO 64147, the proposed SMO1 PADDC site is zoned M1-5 for light industrial uses that include manufacturing, warehousing, and distribution centers. SMO1 is surrounded by other industrial uses south of Missouri State Highway 150 and north of East 155th Street, as shown in Figure 1-2. The properties adjacent to the proposed SMO1 PADDC include industrial warehouses, and a semi-truck and trailer drop yard. The closest residential neighborhood is approximately one mile to the east across Interstate 49; however, the Blue River Bible Church, a noise sensitive site, is located approximately 0.75 mi to the south of the PADDC.
- MKC6 – Located at 6925 Riverview Avenue, Kansas City, KS 66102, the proposed MKC6 PADDC is zoned MP-1 Planned Light Industrial and Industrial Park, which is equivalent to M-1 and includes general industrial activities. MKC6 is located south of Interstate 70 off Turner Diagonal Highway and Day One Lane, as shown in Figure 1-3. The properties adjacent to the proposed MKC6 PADDC are a mix of privately owned properties.

The EA was prepared pursuant to the National Environmental Policy Act (NEPA) (42 United States Code §§ 4321 – 4355)); and FAA Order 1050.1G, *Environmental Impacts: Policies and Procedures*.

After reviewing and analyzing available data and information on existing conditions and potential impacts, the FAA has determined that the Proposed Action would 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.

Purpose and Need

The purpose of Prime Air's proposal is to implement drone delivery operations in Kansas City, and is related to the FAA's role and responsibility to review applications for safe flight and certification under Part 135.

The proposed action is needed to meet consumer demand for package deliveries in Kansas City as identified by Prime Air, and to implement BVLOS for those drone package delivery operations.

Proposed Action

The FAA would amend Prime Air's OpSpecs to enable commercial drone package deliveries in new locations. Accordingly, Prime Air has requested that the FAA approve its OpSpecs amendment so that it can begin drone commercial delivery operations in this new operating area (Kansas City, Missouri and Kansas). The B050 OpSpecs, Authorized Areas of En Route Operations, Limitations, and Provisions, includes a reference section titled Limitations, Provisions, and Special Requirements. The FAA's approval of this OpSpecs amendment—including the paragraph in the B050 OpSpecs's reference section with descriptive language about the operating area boundaries, including the specific locations and operational profile proposed in Prime Air's request—is the proposed federal action for this t EA. The B050 OpSpecs will restrict Prime Air to these two locations; any future expansion beyond the authorization and limitations for the area of operations described in the B050 OpSpecs may require additional OpSpecs amendments from the FAA, and may be subject to appropriate NEPA review, as necessary.

Description of Proposed Operations

Prime Air anticipates operating up to 1,000 delivery flights per operating day, seven days per week, from each of the two PADDCs. These operational levels would result in a projected total of approximately 365 operating days and 365,000 delivery operations per year for each PADDC, based on the scope of the Proposed Action. The operations would occur between 6 a.m. and 10:30 p.m., with 100 of the 1,000 daily delivery operations (10%) occurring during the period from 6 a.m. to 7 a.m. and 10 p.m. to 10:30 p.m. and are anticipated to be distributed evenly across each operating area. The MK30 drone's proposed operating range is 7.5 mi from the PADDC, with a potential operating area of 174 sq mi. The MK30 drone departure and arrival paths from and to each PADDC would generally correspond to the geographical location of the package delivery address.

Drone Specifications

The MK30 is an electric powered drone that has a vertical take-off and landing, and transitions to wing borne flight using wing lift during en route flight. The drone systems include hardware and software designed for safety and efficiency. The airframe is composed of staggered wings, the propulsion system includes a rechargeable lithium-ion battery, and six (6) motors that include propellers designed for noise reduction, the package delivery system contains the package in a two-door interior receptacle, and a camera and avionics system that has redundancy for critical systems. The drone weighs approximately 78 lbs. and has a maximum takeoff weight of 83.2 lbs., which includes a maximum payload of 5 lbs. It has a maximum operating range of 7.5 mi and can fly up to 400 ft above ground level (AGL) at a maximum cruise speed of 73 mph (64 knots) during horizontal flight.

Flight Operations

A typical flight profile can be broken into the following general flight phases: launch, en route outbound, delivery, en route inbound, and landing. After launch, Prime Air's MK30 drone would rise to an altitude of less than 400 ft AGL and follow a predefined route to its delivery site. Aircraft would typically fly en route at between approximately 180 and 377 ft AGL, except when descending to drop a package. Packages would be carried internally in the drone's fuselage. When making a delivery, the drone descends, opens a set of payload doors, and drops the package to the ground from approximately 13 ft AGL. Prime Air's drone would not touch the ground in any place other than the PADDC (except during safe contingent landings) and will remain airborne throughout the operation including the delivery stage. After the package is dropped, the MK30 drone climbs vertically and follows its predefined route back to the PADDC at its assigned altitude. See Section 1.3 of the EA for detailed discussion.

See Chapter 2 of the EA for further information.

Alternatives

The FAA considered the No Action alternative and the Proposed Action in its NEPA analysis. Thus, the No Action alternative serves as a baseline to compare the impacts of the Proposed Action. Under the No Action alternative, the FAA would not issue the approvals necessary (e.g., the OpSpecs amendment) and Prime Air would not be authorized to conduct commercial drone package delivery flights from the two proposed PADDCs in Kansas City. This alternative does not support the stated purpose and need.

See Chapter 2 of the EA for further information.

Environmental Impacts

The potential environmental impacts of the Proposed Action and no action alternative were evaluated in the EA for each environmental impact category identified in FAA Order 1050.1G. Chapter 3 of the EA describes the affected environment within the project study area and identifies the following environmental impact categories that are not analyzed in detail: Air Quality and Climate; Biological Resouces (Fish and Plants); Coastal Resources; Farmlands; Hazardous Materials, Solid Waste, and Pollution Prevention; Land Use; Natural Resources and Energy Supply; Socioeconomics; Children's Health and Safety Risks; Visual Effects (Light Emission Only); and Water Resources (Wetlands, Floodplains, Surface Water, Groundwater, and Wild and Scenic Rivers).

Chapter 3 also evaluates the potential environmental consequences of the Proposed Action 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 impact category, including requisite findings with respect to relevant special purpose laws, regulations, and executive orders, is presented below.

Biological Resources

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 action area;
- Adverse impacts on special-status species (e.g., state species of concern, species proposed for listing, migratory birds, Bald and Golden Eagles) or their habitats;
- 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.

The FAA initiated Section 7 consultation with the USFWS Kansas Ecological Services Field Office on June 17, 2025. The FAA initiated Section 7 consultation with the USFWS Missouri Ecological Services Field Office, initially on June 13, 2025, and provided additional information on June 17, 2025. On June 24, 2025, they issued a concurrence with the FAA's determination that "*the proposed project is not likely to adversely affect federally listed species and is not likely to jeopardize the continued existence of the tricolored bat or the monarch butterfly.*" Copies of all agency correspondence are provided in Appendices.

This concluded the FAA's obligations under Section 7 of the Endangered Species Act. In addition, the Proposed Action would not result in long-term or permanent loss of wildlife species; would not result in substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or populations; and would not have adverse impacts on reproductive success rates, natural mortality rates, non-natural mortality, or ability to sustain the minimum population levels of any species. Therefore, no significant impacts on biological resources are expected under the Proposed Action.

Department of Transportation Act, Section 303 (referred to as "Section 4(f)") and Land and Water Conservation Fund (referred to as "Section 6(f)")

The FAA has determined that drone operations would 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. Occasional flyovers would not result in significant noise levels at any location within the study area, and the short duration of en route flights (approximately 15 seconds) would minimize any potential for significant visual impacts. There would be no physical use of Section 4(f) resources because the Proposed Action has no direct interaction with any resources on the ground. Constructive use could occur when a project would produce an effect, such as excessive noise, that would result in substantial impairment to a property where the features of that property are substantially diminished. However, as discussed in Section 3.6, the Proposed Action would not result in a significant increase in noise levels at any location within the study area. As further described in Section 3.8, the short duration of en route flights would minimize any potential for significant visual impacts.

The FAA is responsible for soliciting and considering the comments of the DOI and, where appropriate, U.S. Department of Agriculture (USDA), or Housing and Urban Development (HUD), as well as the appropriate official(s) with jurisdiction over the Section 4(f) property. Evaluations and determinations under Section 4(f) must reflect consultation with these Departments and officials. However, the ultimate decisionmaker for Section 4(f) determinations is the FAA. Consultation with agencies having jurisdiction over any public parks, recreation areas, waterfowl or wildlife refuges, or historic sites assists in identifying Section 4(f) properties. When a draft Section 4(f) evaluation is prepared, it must be provided to the official(s) with jurisdiction over the Section 4(f) resource, DOI, and as appropriate, to the USDA and HUD. FAA distributed the Notice of Availability (NOA) of the published draft EA for the public comment period to all identified appropriate official(s) with jurisdiction over the Section 4(f) properties.

Therefore, the FAA has determined that the Proposed Action would not cause substantial impairment, or direct or constructive use, as defined in Section 3.4.1, to any of the Section 4(f) resources in the study area. Therefore, the Proposed Action would not result in significant impacts on Section 4(f) resources.

Section 6(f) of the Land and Water Conservation Fund Act (LWCF) (16 U.S.C. §§ 4601-4 et seq.), as amended, provides funding for the purchase and improvement of recreational lands, wildlife and

waterfowl refuges, and other similar resources. The LWCF established a fund for federal acquisition of park and recreational lands and provides matching grants to state and local governments for recreation planning, acquisition, and development. Lands purchased by this fund are protected from conversion to uses other than public outdoor recreation.

The Proposed Action would not convert property acquired or developed using LWCF grants for uses other than public outdoor recreation. Therefore, *there would be no impacts related to the conversion of LWCF fund-assisted properties.*

Historical, Architectural, Archaeological, and Cultural Resources

The effect of drone operations on historic properties would be limited to non-physical, reversible impacts such as the introduction of audible and/or visual elements. The number of daily drone operations would be limited such that any historic or cultural resource would only be subject to a small number of overflights per day.

Furthermore, as described in Section 3.6, a noise analysis concluded that noise levels would be below the FAA's threshold for significance, even in areas with the highest noise exposure.

For the Proposed Action, the FAA initiated consultation with the KS SHPO on June 25, 2025, seeking concurrence with the FAA's definition of the APEs and a finding of no adverse effects. On July 2, 2025, the KS SHPO issued a written determination that the "*proposed project will not adversely affect any National Register-listed or National Register-eligible properties*."

The FAA initiated consultation with the MO SHPO on June 17, 2025, seeking concurrence with the FAA's definition of the APEs and a finding of no adverse effects. On July 23, 2025, the MO SHPO issued a written concurrence with the FAA's determination that "*the proposed undertaking would have no adverse effects*."

The FAA also initiated consultation with Federally Recognized Indian Tribes (on July 10, 2025, via email and regular mail), that may potentially attach religious or cultural significance to resources in the APEs, which include the following: • Absentee Shawnee Tribe of Oklahoma • Cheyenne and Arapaho Tribes of Oklahoma • Delaware Nation • Delaware Tribe of Indians • Eastern Shawnee Tribe of Oklahoma* • Iowa Tribe of Kansas and Nebraska • Iowa Tribe of Oklahoma • Kaw Nation of Oklahoma • Kickapoo Tribe in Kansas • Kiowa Tribe of Oklahoma • Miami Tribe of Oklahoma • Nez Perce Tribe • Omaha Tribe of Nebraska • The Osage Nation • Otoe-Missouria Tribe of Indians, Oklahoma • Pawnee Nation of Oklahoma • Ponca Tribe of Indians of Oklahoma • Ponca Tribe of Nebraska • Prairie Band Potawatomi Nation • Sac and Fox Nation of the Missouri in Kansas and Nebraska • Sac and Fox Nation, Oklahoma • Sac and Fox Tribe of the Mississippi in Iowa • Shawnee Tribe • Stockbridge-Munsee Band of Mohican Indians • Wichita and Affiliated Tribes • Wyandotte Nation

Copies of representative correspondence with potentially interested Tribal Governments are included in Appendix D-2.

Noise and Noise-Compatible Land Use

The Proposed Action is not anticipated to result in any significant impacts in the overall noise environment within the affected area.

Noise Exposure for PADDC Operations

Based on the anticipated average daily maximum of 1,000 deliveries provided by Prime Air for each PADDC, with 100 of the 1,000 daily deliveries occurring during the period from 6 a.m. to 7 a.m. and 10 p.m. to 10:30 p.m., the extent of noise exposure associated with PADDC operations are shown in Figures

3-1 and 3-2 in the EA. This region was determined based on a review of the layout of the PADDC locations and using the noise level information presented in Table 6 of the Technical Noise Report in Appendix E. The noise analysis includes a 10 dB penalty which is applied to the 100 operations that are anticipated to occur during the nighttime period from 10 p.m. to 7 a.m. and is equivalent to 1 nighttime operation being counted as 10 daytime operations. These 100 nighttime delivery operations would be equivalent to 1,000 daytime deliveries and, when combined with the daytime operations, would be equivalent to a combined total of 1,900 daytime equivalent delivery operations. Table 3-4 provides the extent of noise exposure for PADDC operations for the DNL 65 dB and lower noise levels. Note that the data presented in Table 3-4 of the EA only includes noise exposure associated with PADDC operations.

Noise Exposure for En Route Operations

As described in the Technical Noise Report in Appendix E, the drone is expected to typically fly the same outbound flight path between the PADDC's and the delivery points and inbound flight path back to the PADDC's. While the average daily deliveries from each PADCC would be 1,000, the number of overflights in a day would be dispersed because the PADCCs are centrally located in the proposed operating areas and delivery locations would be distributed throughout the proposed operating areas. A conservative estimate for the maximum number of overflights over any one location would be half, or 500 daily delivery overflights. To account for operations from PADCC's during the period from 6 a.m. to 7 a.m. and from 10 p.m. to 10:30 p.m., it is assumed approximately 50 of the 500 daily delivery overflights (10%) would occur during these periods. These 50 nighttime delivery overflight operations would be equivalent to 500 daytime deliveries. When combined with the daytime delivery overflight operations, this would be representative of a combined total of 950 daytime equivalent delivery overflight operations. Since each delivery involves both an outbound and inbound flight path, this equates to 1,900 daily overflights. The en route noise exposure can be determined by referencing Tables 7 and 8 of the Technical Noise Report in Appendix E. This analysis shows that en route noise levels could reach DNL 46.0 dB in any location within each operating area.

Noise Exposure for Delivery Operations

Due to the inherent uncertainty of the exact delivery site locations, the noise analysis developed a minimum and maximum representative average annual daily distribution of deliveries that could occur at a single delivery location in each operating area. The distribution of average annual daily deliveries ranges from one to four deliveries per operating day and conservatively assumes that at least one delivery will occur during the nighttime period between 6 A.M. and 7 A.M. and 10 P.M. and 10:30 P.M. This nighttime delivery is equivalent to 10 daytime deliveries, and when combined with daytime deliveries, is equivalent to a total combined maximum of 13 equivalent daytime delivery operations. The noise exposure for delivery operations includes outbound and inbound en route overflights at the typical operating altitude range of 180 to 377 ft AGL for operations associated with deliveries to other locations. The outbound en route altitude is expected to be flown between 180 and 279 ft AGL. The inbound en route altitude is expected to be flown between 279 and 377 ft AGL back to the PADDC.

A conservative estimate of delivery noise exposure can then be determined by referencing Table 9 of the Technical Noise Report in Appendix E. The estimated delivery DNL includes values at the minimum and maximum distribution of DNL equivalent deliveries at various distances from the delivery point. They include the minimum listener distance from the delivery point at 16.4 ft, which is representative of the closest distance a person may approach before the drone takes automated actions to safely cancel the delivery. This is in addition to the minimum measured distance from the drone for which noise measurement data was available for a delivery, which is 25 ft. Values were also calculated at distances of 50 ft, 75 ft, 100 ft, and 125 ft from the delivery point, and are representative of distances from which

nearby properties may experience noise from a delivery based on the average lot size for sold homes as reported in the 2022 US Census.

The maximum number of average annual daily deliveries at a single location, including overflights, noise levels for the estimated number of deliveries will not exceed the FAA's significance threshold for noise of DNL 65 dB in any of the areas where Prime Air anticipates conducting deliveries.

Total Noise Exposure Results

The maximum noise exposure levels within the operating area would occur at the PADDC site where noise levels at or above DNL 50 dB would extend approximately 1,050 ft from each PADDC. Noise levels at or above DNL 65 dB would extend approximately 150 ft from the PADDC. No residential or other noise sensitive receivers would be exposed to noise levels of DNL 50 dB or greater associated with PADCC operations. Additionally, the estimated noise exposure for en route operations could reach up to DNL 46 dB at any location within each operating area. Lastly, *the resulting noise exposure at any residential-zoned property line would not be expected to exceed DNL 48.1 dB.*

As explained in Section 3.6.1 of the EA , the FAA has an established noise significance threshold, defined in FAA Order 1050.1G, which is used when assessing noise impacts in a particular operating area. A significant noise impact is defined as an increase in noise of DNL 1.5 dB or more at or above DNL 65 dB noise exposure or a noise exposure at or above the 65 dB level due to a DNL 1.5 dB or greater increase. Based on the results of the noise analysis performed for this EA, noise impacts from operations a*re not expected to result in a significant impact. Noise generated by the operations is also not expected to be incompatible with noise sensitive resources within each operating area.*

Visual Effects (Visual Resources and Visual Character)

Impacts on visual resources are expected to be less than significant. The Proposed Action would make no changes to any landforms or land uses; thus, there would be no effect on the visual character of the area, as the nests would be located in established commercial areas. Drone operations would not introduce new light emissions, and the short duration of overflights as well as the low number of overflights within any given location would minimize the potential for substantial visual impacts. *Therefore, no significant impacts on visual effects are expected under the Proposed Action.*

Please refer to Chapter 3 of the EA for a full discussion of the analysis for each environmental impact category.

Reasonably Foreseeable Impacts

Chapter 3 of the EA provides an analysis of the reasonably foreseeable impacts of the Proposed Action. *The FAA has determined that the the Proposed Action is not expected to result in significant reasonably foreseeable effects.*

Public Involvement and Coordination

On January 26, 2026, the FAA published the draft EA for a 30-day public comment period scheduled to end on February 24, 2026. The FAA received comments during the comment period for this EA, which are documented in appendices. The FAA considered all public comments when preparing the EA. Comments were received in writing at 9-FAA-Drone-Environmental@faa.gov.

See Section 1.5 and Appendix F of the EA for further information.

Finding of No Significant Impact

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. Based on the FAA's review and analysis and consideration of comments, it has determined that there would be no significant impacts on 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/ROD.

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. As a result, an Environmental Impact Statement will not be prepared by the FAA.

Decision and Order

The FAA recognizes its responsibilities under NEPA and its own directives. Recognizing these responsibilities, the undersigned has carefully considered the FAA's goals and objectives in reviewing the environmental aspects of the Proposed Action to approve Prime Air's request to expand drone delivery services in the Kansas City. Based upon the above analysis, the FAA has determined that the Proposed Action meets the purpose and need.

The environmental review included the purpose and need to be served by the Proposed Action, alternatives to achieving them, the environmental impacts of these alternatives, and conditions to preserve and enhance the human environment. This decision is based on a comparative examination of the environmental impacts for each of these alternatives. The EA provides a fair and full discussion of the impacts of the Proposed Action. The NEPA process included appropriate consideration for avoidance and minimization of impacts, as required by NEPA and other special-purpose environmental laws, and appropriate FAA environmental orders and guidance.

The FAA has determined that environmental concerns presented by interested agencies and the public have been addressed in the EA. The FAA believes that, with respect to the Proposed Action, the NEPA requirements have been met. FAA approval of this environmental review document indicates that applicable Federal requirements for environmental review of the Proposed Action have been met.

Accordingly, under the authority delegated to me by the Administrator of the FAA, I approve and direct that agency action be taken to carry out implementation of the Proposed Action.

Issued on: May 1 2026

DEREK W HUFTY Digitally signed by DEREK W HUFTY Date: 2026.05.01 08:50:22 -04'00'

Derek Hufty
Manager, AFS-750 General Aviation and Commercial Operations Branch
Emerging Technologies Division
Office of Safety Standards, Flight Standards Service

Right of Appeal

This FONSI/ROD constitutes a final agency action and 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.

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CHAPTER 1
Purpose and Need

1.1 Introduction

Amazon.com Services LLC, doing business as Amazon Prime Air (Prime Air), is seeking to amend its current Operations Specifications (OpSpecs) and other Federal Aviation Administration (FAA) authorizations needed to integrate the MK30 drone and commence commercial drone package delivery operations from two new Prime Air Drone Delivery Centers (PADDC) located in Kansas City, Missouri and Kansas.

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, and the amendment of Prime Air OpSpecs to grant airspace access to the MK30 drone in the proposed operating areas. For purposes of this EA, the MK30 drone operating areas serve as the Study Areas and are further defined in **Chapter 2**.

The issuance or amendment of an OpSpecs is considered a major federal action subject to environmental review requirements. The FAA has prepared this EA pursuant to the National Environmental Policy Act of 1969 (NEPA). Under NEPA, federal agencies are required to consider the environmental effects of proposed federal actions and disclose to decision-makers and the public a clear and accurate description of the potential environmental impacts of proposed major federal actions. Additionally, under NEPA, federal agencies are required to consider the environmental effects of a proposed action, reasonable alternatives to the proposed action, and a no action alternative (assessing the potential environmental effects of not implementing a proposed action). The FAA has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures*, and the FAA Order 1050.1 Desk Reference.

1.2 Proposed Operations

The 78-pound (lb.) MK30 drone carries packages weighing up to 5 lbs. and has a maximum takeoff weight of approximately 83.2 lbs. Prime Air proposes to operate up to 1,000 MK30 drone delivery flights from each PADDC per operating day over the course of 365 operating days per year, resulting in roughly 365,000 annual delivery operations at each PADDC location. Commercial delivery operations from each PADDC would occur between 6 a.m. and 10:30 p.m., up to seven days per week, with up to 100 of the 1,000 daily delivery flights (10%) anticipated to occur during the period from 6 a.m. to 7 a.m. and 10 p.m. to 10:30 p.m. The MK30 drone's proposed operating range is 7.5 miles (mi) from the PADDC, with a potential operating area of 174 square (sq) mi.

The general locations of the two proposed PADDCs are depicted in **Figure 1-1**. Each proposed PADDC facility would be located on the same property as and adjacent to an existing Amazon warehouse building with office space, a ground control station, an aircraft maintenance area, battery storage area, paved departure and arrival pads, and perimeter fencing. All drone operations would originate from and terminate at one of the following PADDC locations:

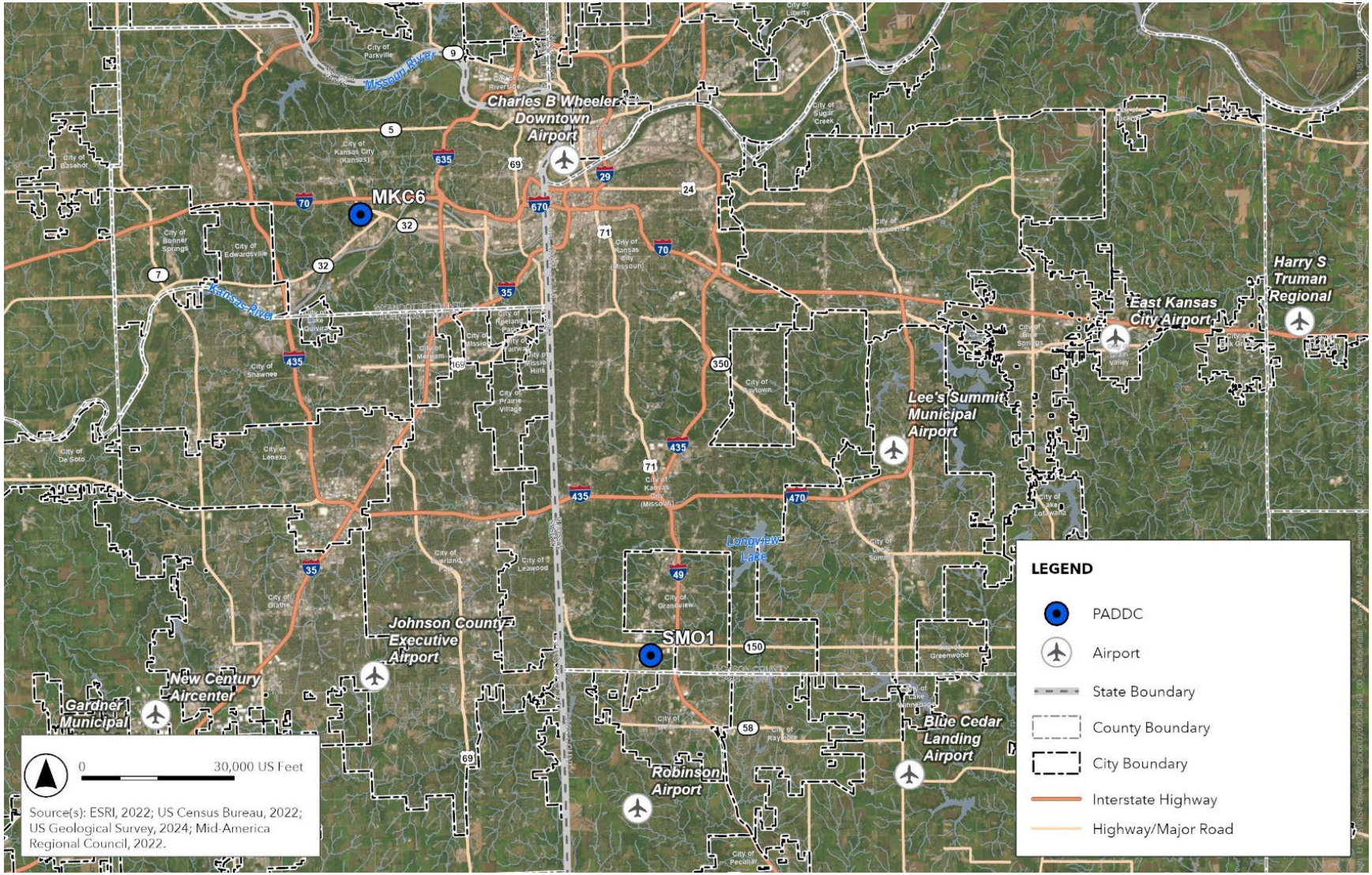
- **SMO1** – Located at 4001 East 149th Street, Kansas City, MO 64147, the proposed SMO1 PADDC site is zoned M1-5 for light industrial uses that include manufacturing, warehousing, and distribution centers. SMO1 is surrounded by other industrial uses south of Missouri State Highway 150 and north of East 155th Street, as shown in **Figure 1-2**. The properties adjacent to the proposed SMO1 PADDC include industrial warehouses, and a semi-truck and trailer drop yard. The closest residential neighborhood is approximately one mile to the east across Interstate 49; however, the Blue River Bible Church, a noise sensitive site, is located approximately 0.75 mi to the south of the PADDC.
- **MKC6** – Located at 6925 Riverview Avenue, Kansas City, KS 66102, the proposed MKC6 PADDC is zoned MP-1 Planned Light Industrial and Industrial Park, which is equivalent to M-1 and includes general industrial activities. MKC6 is located south of Interstate 70 off Turner Diagonal Highway and Day One Lane, as shown in **Figure 1-3**. The properties adjacent to the proposed MKC6 PADDC are a mix of privately owned industrial and residential uses. The closest residential neighborhood is located approximately 900 feet (ft) southeast of the PADDC.

1.3 FAA Role and Federal Action

The FAA has a statutory obligation to review Prime Air's request to amend the OpSpecs and determine whether the amendment would affect safety in air transportation or air commerce, and to determine whether the public interest requires the amendment. In general, Congress has charged the FAA with the safety of air commerce in the United States.[1]

In addition, 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."[2] 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."[3] 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 the OpSpecs.[4]

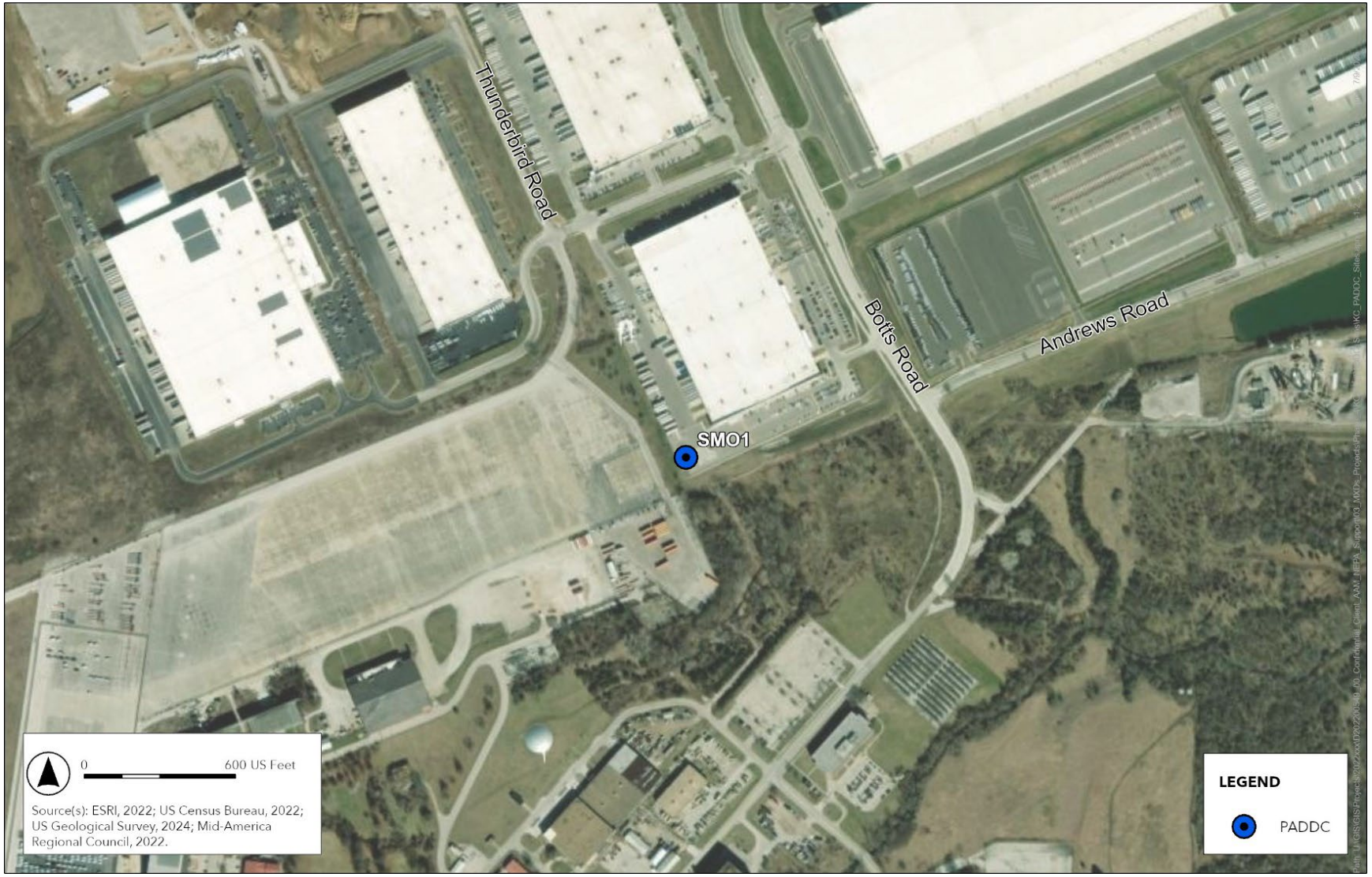
1 49 U.S.C. § 40104.
2 49 U.S.C. § 44705.
3 49 U.S.C. § 44705.
4 14 CFR § 119.5 (g), (l).



Source: ESA, 2024; Maxar, 2022; US Census Bureau, 2021; US Geological Survey, 2022.

Figure 1-1

Prime Air's Proposed PADDC Locations in Kansas City



Source: ESA, 2024;ESRI, 2022; US Census Bureau, 2022; US Geological Survey, 2024; Mid-America Regional Council, 2022.

Figure 1-2

Close-up View of the SMO1 PADDC

Source: ESA, 2024;ESRI, 2022; US Census Bureau, 2022; US Geological Survey, 2024; Mid-America Regional Council, 2022.

Figure 1-3

Close-up View of the MKC6 PADDC

The regulations also specify that a Part 135 certificate holder may not operate in a geographical area unless its OpSpecs specifically authorizes the certificate holder to operate in that area.[5] The regulations implementing Section 44705 specify that an air carrier's approved OpSpecs must include, among other things, "authorization and limitations for routes and areas of operations."[6] An air carrier's OpSpecs may be amended at the request of an operator if the FAA "determines that safety in air commerce and the public interest allows the amendment."[7] After making this determination, the FAA must take an action on the OpSpecs amendment.

1.4 Purpose and Need

The **purpose** of Prime Air's request is to begin commercial drone delivery service in Kansas City, Missouri and Kansas, which, in its business judgment, has determined is a suitable market for expanded commercial delivery operations. The requested OpSpecs amendments are **needed** so that Prime Air can begin MK30 drone delivery operations from its two proposed PADDC locations. The approval will offer Prime Air an opportunity to further assess the viability of commercial drone delivery options in real-world conditions and demonstrate its ability to conduct operations safely while meeting its compliance obligations. Furthermore, it could also help Prime Air gauge public demand for commercial drone delivery services and provide an opportunity to assess community response to commercial delivery operations in this area.

1.5 Public Involvement

The FAA provided a Notice of Availability (NOA) of the Draft EA on January 26, 2026, to local interest groups, local government officials, public park authorities, and the State Historic Preservation Offices (SHPOs), and Federally Recognized Indian Tribes and Tribal Historic Preservation Offices (THPOs). A complete NOA distribution list and documentation of Prime Air's overall public outreach efforts can be found in **Appendix A**. On the same date, the FAA made the Draft EA available to the general public on the FAA website.

The NOA provided information about the Proposed Action and requested review and comments on the Draft EA, which was available on the FAA website for a 30-day comment period (January 26, 2026, to February 24, 2026). Interested parties were invited to submit comments on any environmental concerns relating to the Proposed Action to a specifically assigned email address. All submitted public comments and associated FAA responses are included in **Appendix F**.

5 14 CFR § 119.5(j).

6 14 CFR § 119.49(a)(6).

7 14 CFR § 119.51(a); see also 49 U.S.C. § 44709.

CHAPTER 2
Proposed Action and Alternatives

In accordance with the guidance outlined in Section 102 of NEPA (42 U.S.C. § 4332), the FAA has not identified any unresolved conflicts concerning alternative uses of available resources associated with Prime Air's proposal. Therefore, this EA only considers the No Action and the Proposed Action alternatives.

2.1 No Action Alternative

The FAA considered the No Action alternative and the Proposed Action in its analysis. Thus, the No Action alternative serves as a baseline against which to compare the impacts of the Proposed Action. Under the No Action alternative, the FAA would not issue the approvals necessary (e.g., the OpSpecs amendment) and Prime Air would not be authorized to conduct commercial drone package delivery flights from the two proposed PADDCs in the Kansas City area. This alternative does not support the stated purpose and need.

2.2 Proposed Action

The FAA would amend Prime Air's OpSpecs to enable commercial drone package deliveries in new locations. Accordingly, Prime Air has requested that the FAA approve its OpSpecs amendment so that it can begin drone commercial delivery operations in this new operating area (Kansas City, Missouri and Kansas). The B050 OpSpecs, Authorized Areas of En Route Operations, Limitations, and Provisions, includes a reference section titled Limitations, Provisions, and Special Requirements. The FAA's approval of this OpSpecs amendment—including the paragraph in the B050 OpSpecs's reference section with descriptive language about the operating area boundaries, including the specific locations and operational profile proposed in Prime Air's request—is the proposed federal action for this EA. The B050 OpSpecs will restrict Prime Air to these two locations; any future expansion beyond the authorization and limitations for the area of operations described in the B050 OpSpecs may require additional OpSpecs amendments from the FAA, and may be subject to appropriate NEPA review, as necessary.

2.2.1 Description of Proposed Operations

As described in **Section 1.2**, Prime Air anticipates operating up to 1,000 delivery flights per operating day, seven days per week, from each of the two PADDCs. These operational levels would result in a projected total of approximately 365 operating days and 365,000 delivery operations per year for each PADDC, based on the scope of the Proposed Action. The operations would occur between 6 a.m. and 10:30 p.m., with 100 of the 1,000 daily delivery operations (10%) occurring during the period from 6 a.m. to 7 a.m. and 10 p.m. to 10:30 p.m. and are anticipated to be distributed evenly across each operating area. The MK30 drone's proposed operating range is 7.5 mi from the PADDC, with a potential operating area

of 174 sq mi. The MK30 drone departure and arrival paths from and to each PADDC would generally correspond to the geographical location of the package delivery address.

The proposed operating areas for the SMO1 and the MKC6 PADDCs, which also serve as the Study Areas for the EA, are depicted in **Figures 2-1** and **2-2**, respectively. The two Study Areas are consolidated on a single map, as depicted in **Figure 2-3**.

2.2.2 Drone Specifications

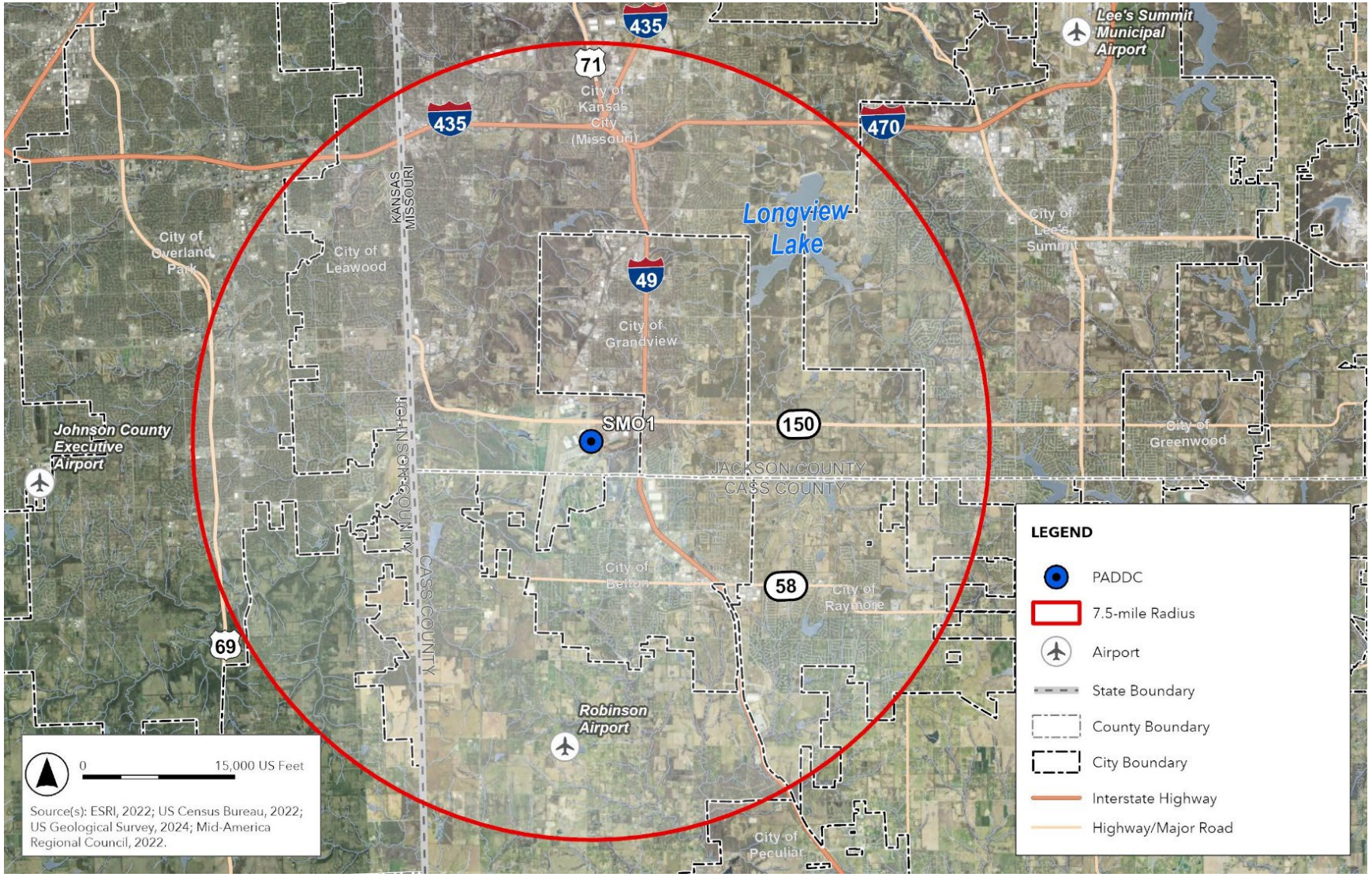
As shown in **Figure 2-4**, the MK30 drone is an electric powered drone that has a vertical take-off and landing, and transitions to wing-borne flight using wing lift during *en route* flight. The MK30 drone systems include hardware and software designed for safety and efficiency. The airframe is composed of staggered wings, the propulsion system includes a rechargeable lithium-ion battery and six (6) motors with noise reduction propellers, the package delivery system which contains the package in a two-door interior receptacle, and a camera and avionics system that has redundancy for critical systems. The MK30 drone weighs approximately 78 lbs. and has a maximum takeoff weight of 83.2 lbs., which includes a maximum payload of 5 lbs. It has a maximum operating range of 7.5 mi and can fly up to 400 ft above ground level (AGL) at a maximum cruise speed of 73 mph (64 knots) during horizontal flight.

2.2.3 Flight Operations

As shown in **Figure 2-5**, a typical flight profile can be broken into the following general flight phases: launch, *en route* outbound, delivery, *en route* inbound, and landing. After launch, Prime Air's MK30 drone would rise to an altitude of less than 400 ft AGL and follow a predefined route to its delivery site.[8] Drones would typically fly *en route* at between approximately 180 and 377 ft AGL, except when descending to drop a package. Packages would be carried internally in the drone's fuselage. When making a delivery, the drone descends, opens a set of payload doors, and drops the package to the ground from approximately 13 ft AGL. Prime Air restricts items deliverable by drone to those which can safely be dropped from this height. Prime Air's MK30 drone would not touch the ground in any place other than the PADDC (except during safe contingent landings) and will remain airborne throughout the operation including the delivery stage.[9] After the package is dropped, the MK30 drone climbs vertically and follows its predefined route back to the PADDC at its assigned altitude.

[8] Prime Air may modify operations, if warranted, to avoid or minimize any negative impacts.

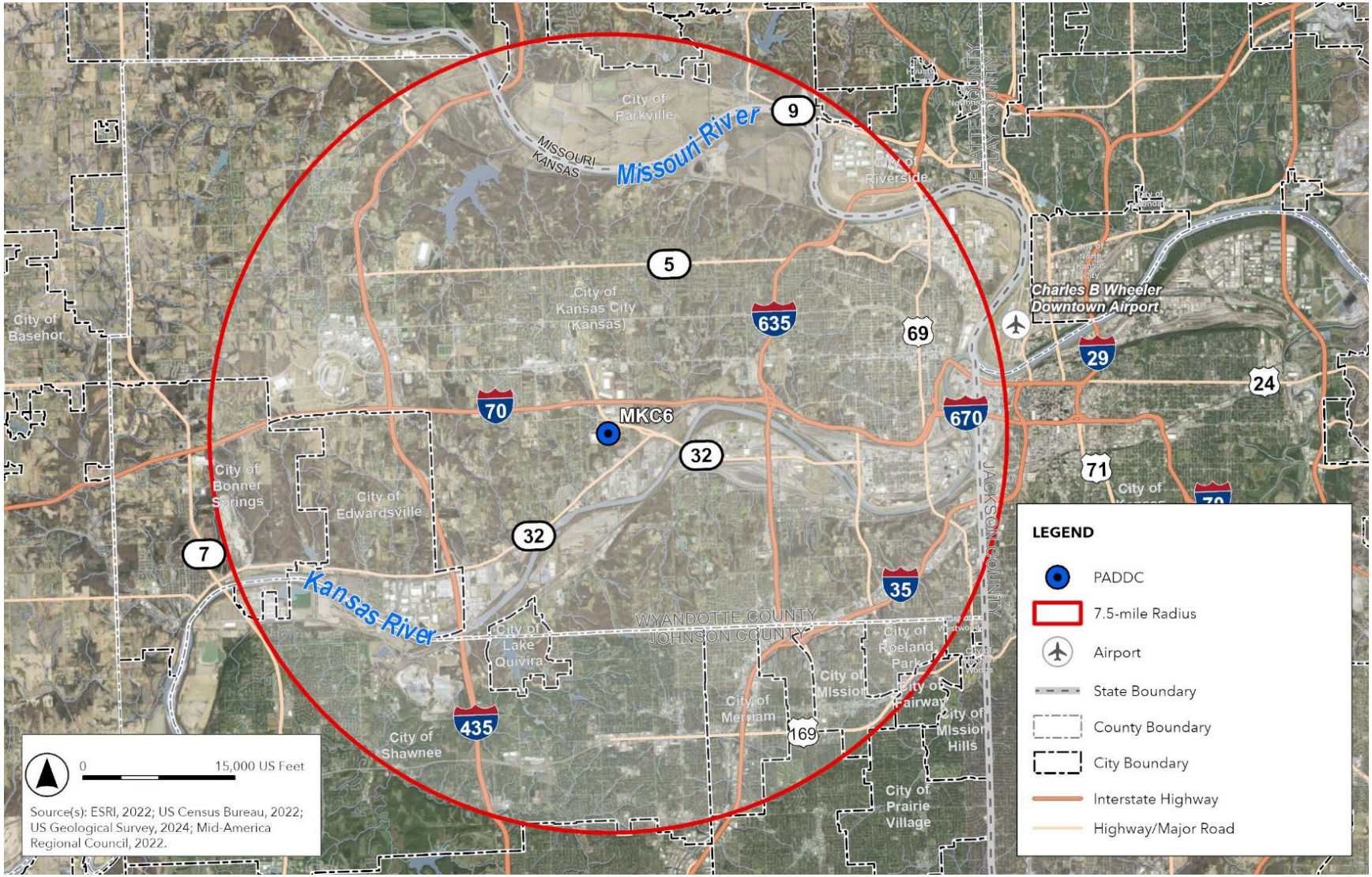
[9] The MK30 drone is built with multiple redundant safety features and "detect and avoid" technology. The drone is designed to handle contingencies and will react accordingly without operator input.



Source: ESA, 2024;ESRI, 2022; US Census Bureau, 2022; US Geological Survey, 2024; Mid-America Regional Council, 2022.

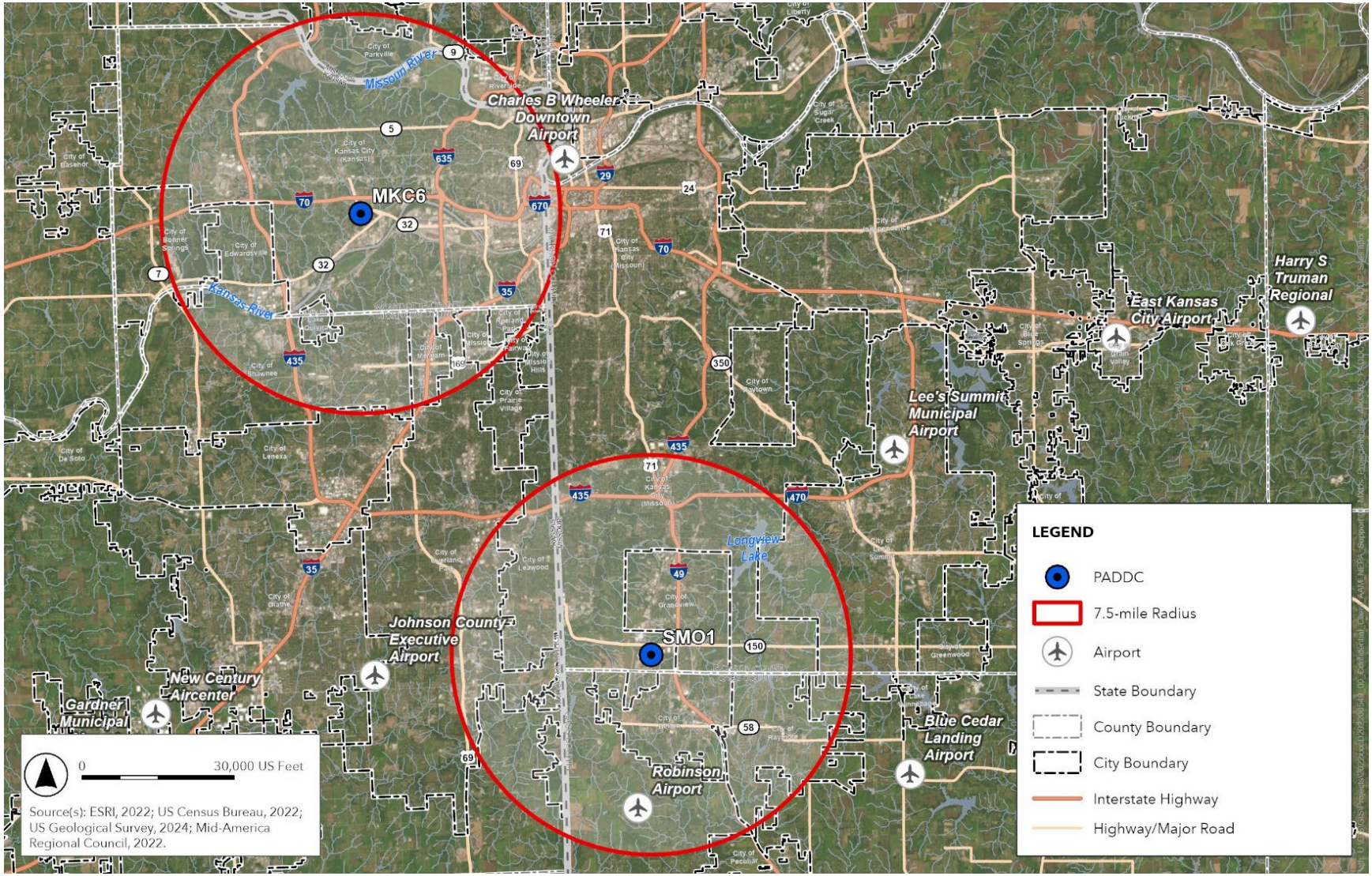
Figure 2-1

SMO1 Drone Operation Study Area



Source: ESA, 2024;ESRI, 2022; US Census Bureau, 2022; US Geological Survey, 2024; Mid-America Regional Council, 2022.

Figure 2-2
MKC6 Drone Operation Study Area

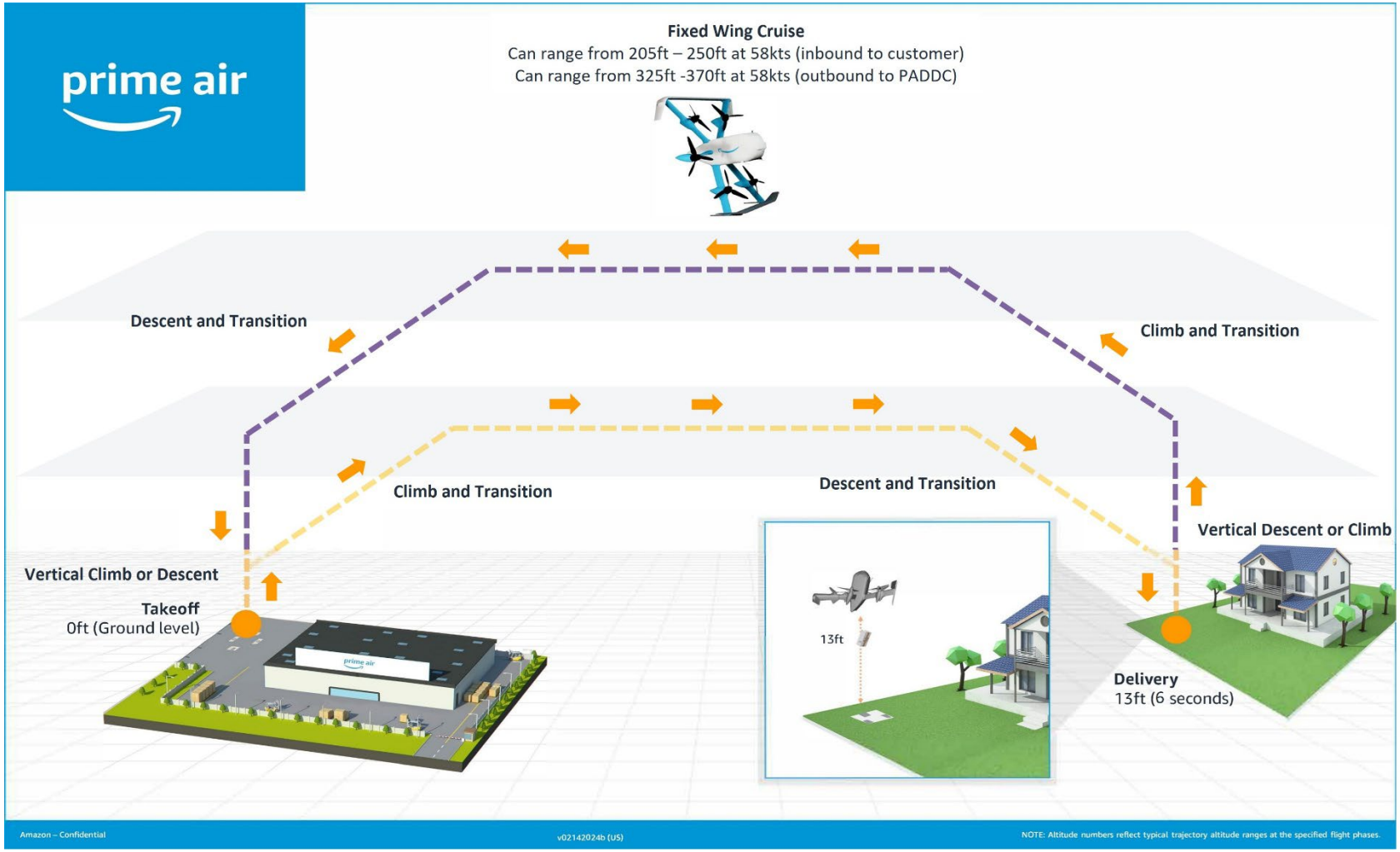


Source: ESA, 2024;ESRI, 2022; US Census Bureau, 2022; US Geological Survey, 2024; Mid-America Regional Council, 2022.

Figure 2-3
Study Areas – All PADDCs

Source: Amazon Prime Air, 2023.

Figure 2-4
MK30 Drone



Source: Amazon Prime Air, 2025.

Figure 2-5
MK30 Drone Flight Profile

CHAPTER 3
Affected Environment and Environmental Consequences

3.1 Introduction

This EA did not analyze potential impacts on the following environmental impact categories in detail because the Proposed Action would not affect the resources included in the category (see FAA Order 1050.1G, Section 1.5(d)). Furthermore, these impact categories were not analyzed in detail for potentially "reasonably foreseeable" effects. Under FAA Order 1050.1G, "reasonably foreseeable" means sufficiently likely to occur such that a person of ordinary prudence would take it into account in reaching a decision. Since these impact categories are unaffected by the Proposed Action, they would not contribute to reasonably foreseeable effects that could occur when combined with the introduction of other drones or aviation activity.

- Aviation emissions and air quality
- Biological resources (including fish, wildlife, and plants)
- Coastal resources
- Department of Transportation Act, Section 303 (referred to as "Section 4(f)") and Land and Water Conservation Fund (referred to as "Section 6(f)")
- Farmlands
- Hazardous materials, solid waste, and pollution prevention
- Historical, architectural, archaeological, and cultural resources
- Land use
- Natural resources and energy supply
- Noise and noise-compatible land use
- Socioeconomics and children's health and safety risks
- Visual effects (including light emissions)
- Water resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)

The study areas evaluated for potential impacts are defined as Prime Air's proposed operating areas shown in **Figures 2-1** and **2-2**. The level of detail provided in this chapter is commensurate with the

importance of the potential impacts. EAs are intended to be concise documents that focus on aspects of the human environment that may be affected by the Proposed Action.

3.2 Environmental Impact Categories Not Analyzed in Detail

This Draft EA did not analyze potential impacts on the following environmental impact categories in detail because the Proposed Action would not affect the resources included in the category (see FAA Order 1050.1G). Furthermore, these impact categories were not analyzed in detail for potentially "reasonably foreseeable" effects. Under FAA Order 1050.1G, "reasonably foreseeable" means sufficiently likely to occur such that a person of ordinary prudence would take it into account in reaching a decision. Since these impact categories are unaffected by the Proposed Action, they would not contribute to reasonably foreseeable effects that could occur when combined with the introduction of other drones or aviation activity.

- **Aviation Emissions and Air Quality:** The MK30 drone is battery-powered and does not generate emissions that could result in air quality impacts. Electricity consumed for battery charging at the PADDC would be minimal. The electricity consumed for the Proposed Action would come from the power grid. The two proposed drone operating areas are located over a six-county area (Johnson, Wyandotte, and Leavenworth counties in KS and Jackson, Platte, and Cass counties in MO) in the vicinity of Kansas City. All counties are designated as attainment, except for Jackson County (maintenance for SO_2), by the US Environmental Protection Agency. However, the minimal emissions associated with charging the drone batteries are unlikely to contribute to any exceedance of National Ambient Air Quality Standards in any of the listed counties.
- **Biological Resources (Fish and Plants):** The Proposed Action would not result in impacts on fish and plant species as the action is launched from developed/industrial areas, transported by drone, and delivered to residential houses and communities.
- **Coastal Resources:** The Proposed Action would not directly affect any shorelines or alter the use of shoreline zones or be inconsistent with any National Oceanic and Atmospheric Administration–approved state Coastal Zone Management Plan as there are no shorelines in the proposed area of operations. The study areas are located several hundred miles from the nearest shoreline.
- **Farmlands:** The Proposed Action would 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. The Proposed Action would not affect designated prime or unique farmlands.
- **Hazardous Materials, Solid Waste, and Pollution Prevention:** The Proposed Action would not result in any construction, development, or any physical disturbances of the ground. Therefore, the potential for impacts related to hazardous materials, pollution prevention, and solid waste is not anticipated. The drones are made of common aircraft-related materials, such as steel, aluminum, and composite materials, such as plastic. Drone/battery disposal would be properly managed at the end of its operating life in accordance with applicable 14 CFR Part 10, *Disposition of life-limited aircraft parts*, and any hazardous materials would be disposed of in accordance with all applicable federal, tribal, state, and local laws, including 40 CFR Part 273, *Standards for Universal Waste Management*.

- **Land Use:** The Proposed Action would not involve any changes to existing, planned, or future land uses within the area of operations. Prime Air would use existing facilities to conduct its MK30 drone operations. The PADDCs must conform with all applicable local or state land use ordinances and zoning requirements, as described in **Section 1.2**.
- **Natural Resources and Energy Supply:** The Proposed Action would not require the need for unusual amounts of natural resources and materials, or those in scarce supply. The MK30 drone is powered by a rechargeable battery which does not consume fossil fuel (e.g., gasoline or aviation fuel) resources. The battery is charged by an electric charger which can leverage the local grid to charge the batteries. The MK30 drone would be used to replace personal vehicle trips to stores for urgently needed items; thus, the MK30 drone is expected to reduce consumption of fossil fuel resources.
- **Socioeconomics and Children's Health and Safety Risks:** The Proposed Action would 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 would not introduce products or substances 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. It is not anticipated that the Proposed Action would pose a greater health and safety risk to children than package delivery by other means (truck, mail, personal automobile, etc.).
- **Visual Effects (Light Emissions Only):** Although a portion of the drone operations could occur during nighttime hours, the Proposed Action is not expected to result in significant light emission impacts because the drones are equipped with only the minimal lighting required by the FAA for any aircraft conducting night operations.[10] The drones are not equipped with concentrated-beam type "landing lights."
- **Water Resources (Wetlands, Floodplains, Surface Water, Groundwater, Wild and Scenic Rivers):** The Proposed Action would not result in any further construction of facilities and does not include any new facilities in areas identified as flood hazard areas according to the 1% annual chance (100-year) floodplain (non-critical actions) and 0.2% annual chance (500-year) floodplain (critical actions) that are currently used to determine the floodplain impacts for the Proposed Action.[11] The Proposed Action would not result in any changes to existing discharges to water bodies, create a new discharge that would result in impacts on 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. The Proposed Action would not affect any river segments in the Wild and Scenic River System (WSRS) as there are no WSRS river segments in the state of Kansas and the closest river segment in Missouri is the Eleven Point River, located more than 100 mi away. A portion of the Kansas River, which is listed in the Nationwide Rivers Inventory (NRI), is located in the proposed operating area of the MKC6 PADDC, as shown in **Figure 2-2**. However, given the minimal overflight times (approximately 3.6 seconds), drone operations are not

[10] The FAA defines nighttime between the hours 10 p.m. and 7 a.m.

[11] Executive Order 14030, *Climate-Related Financial Risk*, May 2021.

expected to interfere with the use and enjoyment of the Kansas River. The National Park Service Midwest Region was informed of the Proposed Action and the opportunity to provide comments via the Notice of Availability, which was electronically distributed to them on January 26, 2026.

3.3 Biological Resources (Wildlife)

3.3.1 Definition of Resource and 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. In addition to their intrinsic values, biological resources provide aesthetic, recreational, and economic benefits to society.

3.3.1.1 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 may affect listed species, consultation with the USFWS must be initiated. Conversely, if the FAA determines the action would have *no effect* on listed species or critical habitat, consultation is not required.

Impacts considered significant to federally listed threatened and endangered species would occur when the USFWS or NMFS determines that a 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.

3.3.1.2 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").

3.3.1.3 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*." Like 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 Part 22, which include permits for the incidental take of Bald Eagles. Such permits are only needed when avoidance of incidental take is not possible. According to the USFWS National Bald Eagle Management Guideline, to avoid Bald Eagle disturbance resulting from new or intermittent activities, the implementation of conservation measures to avoid operating aircraft within 1,000 ft of a nest during the breeding season should be implemented.[12] However, a Bald Eagle Disturbance Take General Permit may be offered if disturbance (range of 330 to 1,000 ft) to an in-use eagle nest is unavoidable.[13]

3.3.2 Affected Environment

This section describes the existing biological environment of the operating area. The operating areas fall into two different ecoregions. In Missouri, the operating area is in the Wooded Osage Plains ecoregion, a transitional area into open savannas as it heads east into the oak-hickory forests of the Ozarks, within Jackson and Cass Counties. The Wooded Osage Plains ecoregion is characterized by grasslands, sandstone glades, dolomitic rock outcroppings, sparse oak groves, and seasonal prairie streams.[14] In Kansas, the operating area is in the Osage Cuestas ecoregion, a transitional area, mostly tallgrass prairie in the west to a combination of tallgrass prairie and oak hickory woodland in the east within Johnson and Wyandotte Counties.[15] The Osage Cuestas ecoregion is characterized by a mosaic of cropland, woodland, and grassland.

The Proposed Action would take place over high to medium density developed urban and commercial areas, and some rural and agricultural areas scattered throughout the Action Area. Therefore, wildlife habitats within the Action Area predominantly include parks, a few open spaces, waterways, and vacant lands. These areas provide habitat for many of the more common and ubiquitous bird and mammal species in the region, including white-tailed deer, eastern gray squirrels, eastern cottontails, raccoons, armadillos, mice, badgers, songbirds, raptors, waterfowl, and insects.[16]

3.3.2.1 Federally Listed Species

The potential for impacts on federally listed species was assessed using the USFWS Information for Planning and Consultation (IPaC) map tool and resource. The Action Areas covered the entire operating

[12] US Fish and Wildlife Service (USFWS), *National Bald Eagle Management Guidelines*, May 2007.

[13] Department of the Interior, USFWS, *Federal Register*, Vol. 89, No 29 Rules and Regulations, 50 CFR Parts 13 and 22, accessed April 2024, https://www.endangeredspecieslawandpolicy.com/assets/htmldocuments/NewBlogs/EndangeredSpecies/2024-02182.pdf.

[14] Missouri Department of Conservation, Upper Osage Grasslands, accessed November 2024, https://mdc.mo.gov/your-property/priority-geographies/upper-osage-grasslands.

[15] Kansas Native Plant Society, The Ecoregions of Kansas, accessed November 2024, https://www.kansasnativeplantsociety.org/ecoregions/.

[16] iNaturalist, accessed November 2024, https://www.inaturalist.org/places/united-states.

areas, as outlined in red in **Figure 2-3**. The USFWS official species list, obtained through IPaC, is included with this EA (accessed November 2024, see **Appendix B**).

Based on the official species list, there are five federally listed endangered and threatened species, one candidate species, one proposed endangered species, and one proposed threatened species with the potential to occur in both the northern and southern Action Areas. **Table 3-1** lists the federally threatened and endangered species that could be present in the Action Area. In addition, no critical habitat was identified that overlaps the Action Areas.

Based on the IPaC report, there are four mammals (Tricolored bat [*Perimyotis subflavus*] – proposed endangered, Gray bat [*Myotis grisescens*] – endangered, Indiana bat [*Myotis sodalist*] – endangered, Northern long-eared bat [*Myotis septentrionalis*] – endangered), one fish (Pallid sturgeon [*Scaphirhynchus albus*]) – endangered, one flowering plant species (Mead's milkweed [*Asclepias meadii*]) - threatened, and two insect species (Monarch butterfly [*Danaus plexippus*]) - proposed threatened, (Western regal fritillary [*Argynnis idalia occidentalis*]) – proposed threatened, identified in the official species list (see **Appendix B**).

TABLE 3-1
IPAC RESULTS

Species	Common Name	Species Name	Federal Status	Critical Habitat
Mammals	Tricolored bat	*Perimyotis subflavus*	Proposed Endangered	N
	Gray bat	*Myotis grisescens*	Endangered	N
	Indiana bat	*Myotis sodalis*	Endangered	N
	Northern Long-eared bat	*Myotis septentrionalis*	Endangered	N
Fishes	Pallid sturgeon	*Scaphirhynchus albus*	Endangered	N
Insects	Monarch butterfly	*Danaus plexippus*	Proposed Threatened	N
	Western regal fritillary	*Argynnis idalia occidentalis*	Proposed Threatened	N
Plants	Mead's milkweed	*Asclepias meadii*	Threatened	N

Source: USFWS IPaC, accessed June 2025

Bald Eagles are not included within **Table 3-1**; however, they are addressed in the Migratory Birds section, below.

IPaC identified four different species of bats as having the potential to occur within the Action Areas.

According to Missouri Department of Conservation (MDC), the tricolored bat has the potential to occur within the Action Areas. This small, yellowish-brown bat can be found hibernating singly in most caves in Missouri. Typically, the tricolored bat hibernates in winter in the humid and warm parts of caves and roosts during the summer in trees, barns, or crannies in cliffs or buildings. It begins feeding around

sundown with other feeding period toward midnight and near daylight. Generally, the tricolored bat forages high over watercourses at the forest edge.[17]

The gray bat also has the potential to occur within the Action Areas. The largest of all Missouri's bats, the gray bat is uniformly brownish gray most of the year changing to a rusty brown during summer months. Key identifiers for the gray bat are the species' wings are attached to the ankle and not at the base of the toes, as well as a distinct notch on the inside curve of each claw. It prefers limestone caves, especially those within two miles of rivers, streams, or lakes. Most of the known gray bat caves are south of the Missouri River, particularly in the Ozarks. Like other bats, the gray bat is an evening feeder that eats insects including caddisflies, moths, or flying beetles; however, its favorite food in the Asiatic oak weevil, found in the summertime abundant in forested cliffs along rivers.[18] The gray bat is labeled as a Species of Conservation Concern in Missouri. In Kansas, the known populations of gray bat are dependent upon storm sewers within the southeast corner of the state. Nearby streams and wooded areas provide critical foraging habitat.[19]

The MDC lists the Indiana bat as a Species of Conservation Concern as well. The Indiana bat is a medium-sized brownish-gray bat with a distinct keel on its calcar. It requires cool caves with stable temperatures around 40 degrees Fahrenheit. More than 85 percent of the known population of Indiana bats hibernate in caves and abandoned mines in eight specific areas including Shannon, Washington, and Iron Counties of Missouri. They roost and forage throughout the summer along streams and rivers in northern Missouri and hibernate throughout the winter. As with the other bat species, the Indiana bat feeds in the evening on night-flying insects.[20]

Lastly, the northern long-eared bat is a medium-sized dark brown bat that is distinguished by their long ears. In the summer, it can be found roosting under the bark of trees and in cavities. During the winter the bat can be found hibernating in caves or mines where temperatures are constant and little to no air movement occurs. The northern long-eared bat eats insects and its feeding habits begin at dusk in the understory of dense woodlands.[21] In Kansas, the northern long-eared bat is labeled as a Species in Need of Conservation (SINC).[22]

Data received using the USFWS IPaC system also identified the monarch butterfly as potentially occurring in the Action Area. Monarchs occur throughout the United States during summer months and have a proposed threatened federal listing. The MDC identifies fields and grasslands, roadsides, and urban and suburban plantings, especially with the presence of milkweed and flowering plants, as the preferred habitat for monarchs in Missouri.[23] Monarchs migrate through Missouri and Kansas in the fall before their annual migration to overwinter in Mexico. Kansas is at the heart of the eastern monarch migratory route and breeding corridor. Counties within the Action Areas (Johnson and Wyandotte

[17] Missouri Department of Conservation, Field Guide, accessed November 2024, https://mdc.mo.gov/discover-nature/field-guide.
[18] Missouri Department of Conservation, Field Guide, accessed November 2024, https://mdc.mo.gov/discover-nature/field-guide.
[19] USFWS, Mead's Milkweed, accessed November 2024, https://www.fws.gov/species/meads-milkweed-asclepias-meadii.
[20] Missouri Department of Conservation, Field Guide, accessed November 2024, https://mdc.mo.gov/discover-nature/field-guide.
[21] Missouri Department of Conservation, Field Guide, accessed November 2024, https://mdc.mo.gov/discover-nature/field-guide.
[22] USFWS, Mead's Milkweed, accessed November 2024, https://www.fws.gov/species/meads-milkweed-asclepias-meadii.
[23] Missouri Department of Conservation, Field Guide, accessed November 2024, https://mdc.mo.gov/discover-nature/field-guide.

Counties, KS, and Jackson, Platte, and Cass Counties, MO) are part of the monarch's Southern Core Conservation Unit.[24]

IPaC results identified an additional butterfly species that could potentially occur in the Action Areas. The regal fritillary is a large butterfly that formerly existed statewide in Missouri. It now is confined to the few remaining tallgrass prairies located in the western and northern parts of the state. It is practically absent from the eastern Ozarks and Mississippi lowlands. The regal fritillary prefers to feed on the prairie violet that specifically grows in tallgrass prairies. The state of Missouri identifies the regal fritillary as a Species of Conservation Concern.[25]

The pallid sturgeon habitat is confined primarily to the Missouri River and lower Mississippi River.[26] The Missouri River is present in the northern Action Area. It is known in Missouri as a Species of Conservation Concern. Pallid sturgeons have been known to occur in the Kansas River during flooding; however, the river typically does not provide permanent suitable habitat.[27] While there is the potential for the pallid sturgeon to exist within the Action Areas, potential impacts on the species or its habitat are not anticipated due to the nature of the Proposed Action.

One plant species, Mead's milkweed, is listed on IPaC as threatened. This species is known to exist within the Action Areas, specifically Jackson County, Missouri and in 34 counties in eastern Kansas. Mead's milkweed is a perennial herbaceous plant that flowers from late May to mid-June. Habitat includes mesic to dry tallgrass and upland prairies with sandstone or chert bedrock, prairie hay meadows, railroad rights-of-way, prairie remnants, virgin mesic silt loam prairies, and igneous glades.[28] Given the nature of the Proposed Action, it is not anticipated that activities associated with the Actions would impact Mead's milkweed, nor is it anticipated that the Proposed Action would impact naturally existing plant community.

3.3.2.2 State Species of Concern

The MDC is charged with the protection and management of Missouri's fish, forest, and wildlife resources. All native plant and animal species in the State of Missouri are protected as biological diversity elements. Species listed in the Missouri Species and Communities of Conservation Concern Checklist (Checklist) and the Wildlife Code of Missouri (Code) under 3 CSR 10-4.111 and all federally listed endangered and threatened plants and animals protected by the ESA are protected by the State Endangered Species Law 252.240.[29] Additional plants and animals in the Checklist and Code are afforded special legal protection. The Action Area in Missouri includes Jackson, Platte, and Cass Counties and lists nine species including mammals, plants, insects, and fish that are protected.

[24] Department of Wildlife and Parks, Kansas, 2019, *2019 Kansas Monarch Conservation Plan*, accessed November 2024, https://ksoutdoors.com/Wildlife-Habitats/Wildlife-Conservation/2019-Kansas-Monarch-Conservation-Plan.

[25] Missouri Department of Conservation, Field Guide, accessed November 2024, https://mdc.mo.gov/discover-nature/field-guide.

[26] Missouri Department of Conservation, Field Guide, accessed November 2024, https://mdc.mo.gov/discover-nature/field-guide.

[27] Department of Wildlife and Parks, Kansas, Pallid Sturgeon, accessed November 2024, https://ksoutdoors.com/Services/Threatened-and-Endangered-Wildlife/All-Threatened-and-Endangered-Species/PALLID-STURGEON.

[28] Missouri Department of Conservation, Field Guide, accessed November 2024, https://mdc.mo.gov/discover-nature/field-guide.

[29] Missouri Endangered Species Law, effective August 28, 1984, https://revisor.mo.gov/main/OneSection.aspx?section=252.240.

In Kansas, state and federally listed species are protected as designated by the Kansas Nongame and Endangered Species Act of 1975. The act places responsibility directly upon the Department of Wildlife and Parks to identify and undertake appropriate conservation measures for listed species. This is completed through statutes and regulations. The Action Areas involve two counties in Kansas. Wyandotte County has 13 wildlife listed as threatened or endangered and Johnson County has 14 wildlife species listed as threatened or endangered. Additionally, Kansas has an additional list of species per county it labels as SINC. The species require additional conservation efforts to prevent them from becoming endangered or threatened.

Appendix B provides a list of state-listed species for each county within the Action Areas.

3.3.2.3 Migratory Birds

Migratory bird species found within the operating area will vary throughout the year. During certain weeks in the spring and fall, hundreds of species of songbirds, raptors, and waterfowl may potentially pass through the operating area. Additionally, several dozen species of birds may potentially nest in the operating area at certain times of the year.

The Bald Eagle is a migratory species that is protected under the Bald and Golden Eagle Act. Eagles may appear throughout Missouri and Kansas as spring and fall migrants, breeders, or winter residents.[30] Known eagle nest locations within the SMO1 Action Area were requested from the MDC and will be provided once information is received. Data received from the USFWS Kansas Regional Office indicate there are three eagle nest locations within the KMC6 Action Area. Two of the nests are located along the Kansas River and the third is located along the Missouri River. The National Bald Eagle Management Guidelines state aircraft should stay at least 1,000 ft from the nests during the breeding season unless the aircraft is operated by a trained wildlife biologist.[31]

3.3.3 Environmental Consequences

Drones used for commercial package delivery fly at lower speeds and elevations and are smaller than conventional aircraft. Furthermore, the drones would be hovering in fixed positions at both the PADDCs and delivery locations leaving them temporarily exposed to a potential mobbing and/or attacking bird defending its breeding territory.

Bird behavior, in particular mobbing and territorial defense behaviors, on flying and hovering drones is the most important risk consideration analysis, as these behaviors are the most pertinent to the Proposed Action. Mobbing behavior includes birds emitting alarm calls, flying at a potential predator, diverting its attention, and harassing it. Mobbing and aerial attack behaviors typically occur when a raptor, crow, or other aerial predator enters the airspace of a breeding habitat bird or territorial male.[32] Certain species of birds are known to harass, mob, and attack aerial predators that fly into or near their territory, especially

[30] Cornell Lab of Ornithology, No Date, *All About Birds: Bald Eagle*, https://www.allaboutbirds.org/guide/Bald_Eagle/overview.

[31] USFWS National Bald Eagle Management Guidelines, May 2007. https://www.fws.gov/sites/default/files/documents/national-bald-eagle-management-guidelines_0.pdf

[32] Royal Society for the Protection of Birds, 2023, What is Mobbing? accessed July 2023 and February 2024, https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/birdwatching/bird-behaviour/what-is-mobbing/.

during the breeding season when birds are actively nesting. The defending birds will chase, dive bomb, attack the backside, and vocalize to harass the aerial predator until the offender is far enough from the territory that the defending birds cease attacking and return to their nests and foraging activities.[33] Not all bird species exhibit mobbing and territorial defensive behaviors. Some bird species are more aggressive, defensive, and cued on aerial predators, while other species may show aggression or interest towards an overflying hawk in its territory. Species of birds that exhibit mobbing and territorial defense behaviors include Northern Mockingbirds, kingbirds, blackbirds, grackles, jays, crows, ravens, and some raptors.

The MK30 drone would utilize existing infrastructure at each PADDC. There would be no further expansion of the PADDCs, or habitat modification associated with the Proposed Action. Earlier construction was not part of the Proposed Action reviewed by the FAA, but any future ground construction at the PADDC sites would require approval or authorization by the FAA.

Prime Air's drones would not touch the ground in any other place than the PADDC (except during emergency landings) since it remains airborne while conducting deliveries. All phases of operations would be taking place within airspace, and typically well above the tree line and away from sensitive habitats. After launch, Prime Air's drone would rise to a cruising altitude between 180 and 377 ft AGL and follow a preplanned route to its delivery site. The pre-planned route is optimized to avoid terrain and object obstructions, areas of high aircraft traffic, and areas where people may gather in large numbers such as highways, parks, and schools.

Drones would typically stay between 180 and 377 ft AGL except when descending to drop a package. When making a delivery, the drone descends, and packages are dropped to the ground from approximately 13 ft AGL. Packages are carried internally in the drone's fuselage and are dropped by opening a set of payload doors. After the package is dropped, the drone then climbs vertically to approximately 180 to 377 ft and reverses the path taken, returning to the takeoff/landing pad at the PADDC. The drone would take approximately 61 seconds to complete a delivery, which includes the descent from en route altitude, dropping the package, and returning back to en route altitude. As a result, the duration of exposure by most wildlife on the ground to the visual or noise impacts from the drone would be of very short duration (approximately one minute).

It is not likely that listed species would be in the vicinity of the delivery location because such locations would be developed areas. However, even if species were expected to be exposed to this noise level, the noise would be unlikely to cause significant disturbance (for context, a drone overflight at 50 ft is approximately 71.2 dB, whereas a leaf blower at 50 ft is approximately 73 to 77 dB).[34] At a potential maximum of 1,000 flights per day across the entire Action Area of each PADDC (or 2,000 total per day), the distribution and altitude of the flights are not expected to significantly affect wildlife in the Action Area.

A significant impact on federally listed threatened and endangered species would occur when the USFWS or NMFS determines a proposed action would be likely to jeopardize the continued existence of a

[33] Kalb, N., and C. Randler, 2019, Behavioral Responses to Conspecific Mobbing Calls Are Predator-Specific in Great Tits (*Parus major*), *Ecology and Evolution* 9(16):9207–9213, https://doi.org/10.1002/ece3.5467.

[34] Appendix E: Estimated Noise Levels for Amazon Prime Air MK30 Drone, Table 8, and Characteristics of Lawn and Garden Equipment Sound: A Community Pilot Study (National Institutes of Health) (National), December 2017, Table 2, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6707732/.

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.

Additionally, the FAA has looked at the potential effects of wildfires that may be caused by the Proposed Action. While the Prime Air drone has been evaluated for airworthiness and is considered to be safe for the proposed operations over the operating area, the FAA acknowledges that a crash may occur and could result in a wildfire. Prime Air would use system reported data to locate and report an off-nominal drone and would follow their Safety Management System's prescribed Incident Response Process to coordinate with local first responders as required. Due to the limited forested area within the Action Area, potential for wildfires is minimal.

The FAA understands that Prime Air would immediately notify local emergency fire response services if one of its drones were to crash, and that fire responders would be able to manage any wildfire that could occur before the wildfire could cause significant impacts on biological resources in the operating area.

3.3.3.1 No Action Alternative

Under the No Action Alternative, the FAA would not issue the approvals necessary to enable Prime Air to conduct commercial drone package delivery operations in the Kansas City operating area, including the use of the MK30 drone. Accordingly, the No Action Alternative would not result in impacts on biological resources.

3.3.3.2 Proposed Action

The Proposed Action includes up to 1,000 MK30 drone flights per day, per PADDC, up to 365 days per year, operating between 6 a.m. and 10:30 p.m. There would be no ground construction or habitat modification associated with the Proposed Action. The drone would not touch the ground in any other place than the PADDC (except during emergency landings) because it remains aerial while conducting deliveries. Scheduled deliveries would initiate from the PADDC, approach an en route altitude of less than 400 ft AGL, and would generally occur between 180 and 377 ft AGL. The drone would lower to around 13 ft AGL and hover for two seconds to make a delivery. Then, the drone would transition back to an en route flight mode to return to the PADDC.

Operations would occur mostly in an urban environment, typically well above the tree line and away from sensitive habitats and given the short duration of increased ambient sound levels, flights are not expected to significantly influence wildlife in the area. A direct line of communication would be established with the Missouri Department of Natural Resources and/or the Kansas Department of Wildlife and Parks to discuss any potential concerns regarding impacts on wildlife or habitat in the Action Area. In addition, Prime Air would also specifically coordinate with the managing entities of state parks and natural areas within the Action Area on the thoughtful placement and use of delivery sites within these areas as necessary.

Special-Status Species

Since the operations would continue to occur within airspace only, and there would be no construction or ground disturbance under the Proposed Action, it is anticipated that there would be *no effect* on the Pallid sturgeon or the Mead's milkweed identified within the USFWS IPaC official species list.

The monarch butterfly, proposed threatened-listing, has the potential to occur in the operating area. Information regarding drone impacts on insects is limited and there have been no widespread negative impacts identified in scientific literature. Some research shows that monarch butterflies often fly at elevations where they are not easily observed from the ground, generally between 800 and 1,200 ft in elevation, and would not be expected to frequently occur at the altitudes where Prime Air is proposing to operate.[35]

The tricolored bat, Indiana bat, gray bat, and the northern long-eared bat are all federally protected species that could be located within the Action Area. The Proposed Action would occur during the dusk emergence of bat activity during the evening civil twilight hours; however, drone service would not affect the dawn civil twilight hours. Research suggests that drones have "*minimal impact on bat behavior*"[36] and that bats do not appear to be disturbed by drones.[37] Also, the risk of bat conflicts is only present for 3 to 6 months each year (i.e., when bats are not hibernating). Bats at roost or in flight could experience drone noise during the en route and delivery flight phases. When foraging at or near the tree line at the time a drone flies by, bats would experience the greatest sound levels. Roosting bats or bats foraging near the ground at the time a drone flies by would experience lower sound levels. Given the estimated sound levels of the drone, the drone's linear flight profile to and from PADDCs and delivery locations, the short period of time the drone would be in any particular location, and the low probability of encountering an individual bat in the Action Area, drone noise is not expected to adversely affect the above referenced bat species. Any increase in ambient sound levels caused by the drone's flight would only last a few seconds during the en route phase and approximately 49 seconds during a delivery.

Bats could also be struck by a drone, particularly around dawn and dusk when foraging. Given the bat's ability to avoid flying into objects, the short period of time the drone would be in any one place, and the low probability of encountering bats during operations, the likelihood of the drone striking a bat is low.

Based on (1) operations occurring mostly in an urban environment, (2) the altitude at which the drone flies in the en route phase (180 to 377 ft AGL), (3) the expected low sound levels experienced by a bat, (4) the short duration of any increases in ambient sound levels, (5) the low probability of a tricolored bat occurring in the Action Area, and (6) the low likelihood of the drone striking a bat, the FAA has determined the action *may affect, but is not likely to adversely affect*, the tricolored bat, the Indiana bat, the gray bat, and the northern long-eared bat. Any effects would be discountable (extremely unlikely to occur) or insignificant (not able to be meaningfully measured, detected, or evaluated).

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35 Howard, I., and K. Slusser, 2025. 5 Monarch Migration Facts, Xerces Society, February 6, 2025, accessed June 2025, https://xerces.org/blog/5-monarch-migration-facts.

36 Fu, Y., M. Kinniry, and L.N. Kloepper, 2018, The Chirocopter: A UAV for Recording Sound and Video of Bats at Altitude, *Methods in Ecology and Evolution* 9(6):1531–1535, https://doi.org/10.1111/2041-210x.12992.

37 August, T., and T. Moore, 2008, *Autonomous Drones Are a Viable Tool for Acoustic Bat Surveys*, accessed July 2023 and February 2024, https://www.biorxiv.org/content/10.1101/673772v1.full.pdf.

Appendix B identifies the federal and state-listed threatened and endangered species that could occur in Missouri (Jackson, Platte, and Cass Counties) and Kansas (Johnson and Wyandotte Counties). Given the habitat type and distribution required by state-listed species that may occur in the above-listed counties and due to the lack of suitable habitat in the Action Area, no effects to state-listed species or species habitat are anticipated.

The FAA's effect determinations for the federally listed species discussed are presented in **Table 3-2**.

TABLE 3-2
EFFECTS DETERMINATION TABLE

Common Name	Species Name	Federal Status	Effects Determination
Tricolored bat	*Perimyotis subflavus*	Proposed Endangered	*Not Jeopardize the Continued Existence*
Gray bat	*Myotis grisescens*	Endangered	*Not Likely to Adversely Affect (NLAA)*
Indiana bat	*Myotis sodalis*	Endangered	*Not Likely to Adversely Affect (NLAA)*
Northern Long-eared bat	*Myotis septentrionalis*	Endangered	*Not Likely to Adversely Affect (NLAA)*
Monarch butterfly	*Danaus plexippus*	Proposed Threatened	*No Effect*

Source: FAA, 2025

3.3.3.3 Migratory Birds

Prime Air has stated to the FAA that it would monitor the operating area for any active Bald Eagle nests that may occur. Monitoring efforts would focus on annual desktop reviews of available databases for confirmation of existing nests and identification of new nests, but could also include, if required by USFWS, annual in-person visual surveys of potential nests located in drone operating areas. Bald Eagle nests are typically very conspicuous, usually five to nine ft in diameter, with a vertical depth up to eight ft, and should be easily identified.[38] Bald Eagles are usually seen near lakes, rivers, and marshes while foraging for fish or carrion. If nests are identified, Prime Air would establish an avoidance area such that there is 1,000 ft vertical and horizontal separation distance between the vehicle's flight path and the nest. The avoidance area would be maintained until the end of the breeding season in Missouri (December 15 through July 15) and in Kansas (December 1 through July 31).[39]

The Red-Headed Woodpecker (*Melanerpes erythrocephalus*) is a BCC with a high probability of occurring within the operating area. Red-Headed Woodpeckers typically nest in tall, dead trees in open woodlands and forests.[40] Throughout the Red-Headed species range, their population numbers are in decline. It is possible that Red-Headed Woodpeckers may be nesting within the operating area and, while it is not anticipated, there is the possibility that drone operations in close proximity could disturb birds at nesting sites during its breeding season (May 10 through September 10). While it is not expected that

[38] USFWS Midwest Region, Identification of Large Nests, accessed January 2024, https://www.fws.gov/program/eagle-management/eagle-permits.

[39] USFWS, Eagle Management, accessed December 2024, https://www.fws.gov/program/eagle-management/eagle-incidental-disturbance-and-nest-take-permits.

[40] Missouri Department of Conservation, Red-Headed Woodpecker, accessed December 2024, https://mdc.mo.gov/discover-nature/field-guide/red-headed-woodpecker.

infrequent drone overflights would cause adverse effects to Red-Headed Woodpeckers, Prime Air would monitor the operating area for nesting sites and take avoidance measures if determined to be necessary.

The Chimney Swift (*Chaetura pelagica*) is another BCC with a high probability of occurring within the operating area. Chimney Swifts typically do not perch on branches, but often make their nests within chimneys, hollow trees, and similar dark, sheltered areas.[41] It is possible that Chimney Swifts may be nesting within the operating area and that drone operations in close proximity could affect its nesting sites during its breeding nesting season (March 15 through August 25). While it is not expected that infrequent drone overflights would cause adverse effects to nesting or feeding Chimney Swifts, Prime Air would monitor the operating area for active Chimney Swift nesting sites and take avoidance measures if determined to be necessary.

The other BCC species identified in the IPaC official species list breed elsewhere or they are not likely to be nesting out in the open and within close proximity to human presence. These other BCC species typically nest in forests and riparian corridor environments that are not within close proximity to locations where the Prime Air drone would be completing its ascent and descent. Additionally, the drone's en route overflights are not expected to result in effects on any lifecycles of these species.

Due to the limited operating area and proposed number of daily operations, occasional drone overflights at approximately 180 to 377 ft AGL are not expected to impact critical lifecycles of wildlife species or their ability to survive.

In summary, 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 action area;
- Adverse impacts on special-status species (e.g., state species of concern, species proposed for listing, migratory birds, Bald and Golden Eagles) or their habitats;
- 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.

The FAA initiated Section 7 consultation with the USFWS Kansas Ecological Services Field Office on June 17, 2025. On April 17, 2026, they issued a concurrence with the FAA's determination that "*the proposed project may affect, but is not likely to adversely affect, the federally listed northern long-eared bat, gray bat, and Indiana bat*."

The FAA initiated Section 7 consultation with the USFWS Missouri Ecological Services Field Office, initially on June 13, 2025, and provided additional information on June 17, 2025. On June 24, 2025, they issued a concurrence with the FAA's determination that "the proposed project is *not likely to adversely*

[41] Missouri Department of Conservation, Chimney Swift, accessed December 2024, https://mdc.mo.gov/discover-nature/field-guide/chimney-swift.

affect federally listed species and is *not likely to jeopardize the continued existence* of the tricolored bat or the monarch butterfly."

Copies of all agency correspondence are provided in **Appendix B**.

3.3.3.4 Reasonably Foreseeable Effects

The introduction of Prime Air's drone operations may occur in areas subject to other aviation activity, necessitating the evaluation of reasonably foreseeable effects on biological resources when combined with other aviation operations. Prime Air's proposed operations of the MK30 drone would utilize existing infrastructure at each PADDC and any future ground construction at the PADDC sites would require further approval or authorization by the FAA. Furthermore, drone operations would occur mostly in an urban environment, typically well above the tree line and away from sensitive habitats and given the short duration of increased ambient sound levels, flights are not expected to significantly influence wildlife in the area. In the future, other drone operations or aviation activity may be proposed to operate with this Proposed Action's operating areas. Should that occur, Prime Air understands the potential for impacts may increase due to the introduction of additional drone or other aviation activity and would work with operators and the FAA to mitigate potential impacts. The FAA would also conduct a new environmental analysis—including evaluating reasonably foreseeable effects on biological resources—prior to the commencement of drone operations or other aviation activity in these areas.

3.4 Department of Transportation Act, Section 303 (referred to as "Section 4(f)") and Land and Water Conservation Fund (referred to as "Section 6(f)")

3.4.1 Definition of Resource and Regulatory Setting

Section 4(f) of the U.S. Department of Transportation (DOT) Act (codified at 49 U.S.C. § 303) protects significant publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. Section 4(f) states that "… [the] Secretary of Transportation may approve a transportation program or project requiring the use of any publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge of national, state, or local significance or land from a historic site of national, State, or local significance, only if there is no feasible and prudent alternative to the use of such land and the program or project includes all possible planning to minimize harm resulting from the use."

The word "use" can mean either a physical or constructive use. A physical use is the actual physical taking of a Section 4(f) property through purchase of land or a permanent easement, physical occupation of a portion or all of the property, or alteration of structures of facilities on the property. A "constructive" use does not require a physical taking of a Section 4(f) property. A constructive use would occur when a project would produce an effect, such as excessive noise, that would result in substantial impairment to a property to the degree that the activities, features, or attributes of the property 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 being used for a proposed action.

The procedural obligations for Section 4(f) compliance are outlined in DOT Order 5610.1C, *Procedures for Considering Environmental Impacts*. Additionally, the FAA adheres to the regulations and guidance

provided by the Federal Highway Administration (FHWA) when evaluating potential impacts on Section 4(f) properties.[42,43] While these requirements are not obligatory for the FAA, they may be utilized as guidance to the extent that they are applicable.[44]

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act (16 U.S.C. §§ 4601-4 et seq.), as amended, provides funding for the purchase and improvement of recreational lands, wildlife and waterfowl refuges, and other similar resources. The LWCF established a fund for federal acquisition of park and recreational lands and also provides matching grants to state and local governments for recreation planning, acquisition, and development. Lands purchased by this fund are protected from conversion to uses other than public outdoor recreation.

3.4.2 Affected Environment

The FAA used data from federal, state, and other publicly accessible sources to identify potential Section 4(f) resources within the study area. As listed in Table C-1 of **Appendix C**, the FAA identified a total of 285 properties that could meet the definition of a Section 4(f) resource, including public parks administered by city, county, and state authorities. There are no national parks or wildlife or waterfowl refuges within the operating area. Historic and cultural resources are addressed by both Section 4(f) and the National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. § 470, as amended), and are discussed further in **Section 3.5**. Additionally, the FAA requested assistance from national, state, city, and county governments in identifying the appropriate stakeholders that likely have an interest in the project and its effects on Section 4(f) resources. The officials with jurisdiction under Section 4(f) regulatory interest include:

- City of Belton
- City of Bonner Springs
- City of Edwardsville
- City of Grandview
- City of Kansas City, KS
- City of Kansas City, MO
- City of Lake Quivira
- City of Leawood
- City of Lee's Summit
- City of Lenexa
- City of Merriam
- City of Mission
- City of Overland Park
- City of Parkville
- City of Raymore
- City of Riverside
- City of Roeland Park
- City of Shawnee
- City of Westwood
- Johnson County
- Kansas Military Board
- Missouri Department of Conservation
- Platte County
- Water District #1 of Johnson County
- Wyandotte County

These organizations were informed of the Proposed Action and the opportunity to provide comments via the Notice of Availability, which was electronically distributed to them on January 26, 2026.

[42] Federal Highway Administration, July 20, 2012, Section 4(f) Policy Paper, Office of Planning, Environment and Realty Project Development and Environmental Review, Washington, DC, https://www.environment.fhwa.dot.gov/legislation/section4f/4fpolicy.aspx.

[43] 23 CFR Part 774, Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and historic Sites (Section 4(f)).

[44] Further details about the DOT Act and Section 4(f) can be accessed in 23 CFR Part 774 et seq.

As noted in Table C-2 of **Appendix C**, 36 public recreation areas and facilities in the two drone operating areas were developed using LWCF grant funds.

3.4.3 Environmental Consequences

3.4.3.1 No Action Alternative

Under the No Action Alternative, the FAA would not issue the approvals necessary to enable Prime Air to conduct commercial drone package delivery operations in the Kansas City area. Accordingly, the No Action Alternative would not result in impacts on Section 4(f) or LWCF properties.

3.4.3.2 Proposed Action

Under the Proposed Action, the FAA would approve Prime Air's OpSpec amendment so that it can introduce drone package delivery operations by using the MK30 drone across the intended Kansas City operating areas. There would be no physical use of Section 4(f) resources because the Proposed Action has no direct interaction with any resources on the ground. Constructive use could occur when a project would produce an effect, such as excessive noise, that would result in substantial impairment to a property where the features of that property are substantially diminished. However, as discussed in **Section 3.6**, the Proposed Action would not result in a significant increase in noise levels at any location within the operating areas. As further described in **Section 3.8**, the short duration of en route flights would minimize any potential for significant visual impacts.

Jackson County regulates the use of radio-controlled devices, including drones, within county parks through Chapter 50 Regulations 5081-5083.[45] The Proposed Action meets these regulations since the drones would not be operated from park properties under Jackson County jurisdiction and would be below the allowable noise levels for radio-controlled devices (sound level in excess of 98 dB on a weighted scale when measured from a distance of 50 ft or more).

Therefore, the FAA has determined that the Proposed Action would not cause substantial impairment, or physical or constructive use, as defined in **Section 3.4.1**, to any of the Section 4(f) or LWCF resources in the operating areas.

3.4.3.3 Reasonably Foreseeable Effects

The introduction of Prime Air's drone operations may occur in areas subject to other aviation activity, necessitating the evaluation of reasonably foreseeable effects on Section 4(f) or LWCF resources when combined with other aviation operations. Prime Air's operations would have no physical use of Section 4(f) resources because the Proposed Action has no direct interaction with any resources on the ground. Furthermore, as discussed in **Section 3.6**, the Proposed Action would not result in a significant increase in noise levels at any location within the operating areas and the short duration of en route flights would minimize any potential for significant visual impacts. In the future, other drone operations or aviation activity may be proposed to operate with this Proposed Action's operating areas. Should that occur, Prime Air understands the potential for impacts may increase due to the introduction of additional drone or other aviation activity and would work with operators and the FAA to mitigate potential impacts. The FAA

[45] Jackson County Park Regulations, August 4, 2022, https://www.jacksongov.org/files/sharedassets/public/v/1/our-county/county-code/50-park-reg-8-4-22.pdf.

would also conduct a new environmental analysis—including evaluating reasonably foreseeable effects on Section 4(f) or LWCF resources—prior to the commencement of drone operations or other aviation activity in these areas.

3.5 Historical, Architectural, Archaeological, and Cultural Resources

3.5.1 Regulatory Setting

This section discusses historic, architectural, archaeological, and cultural resources within the operating areas. These resources reflect human culture and history in the physical environment, and may include structures, objects, and other features important in past human events. Cultural resources can also include characteristics of the physical environment such as natural features and biota that are important to traditional cultural practices and institutions.

The primary laws pertaining to the treatment of historic, architectural, archaeological, and cultural resources during environmental analyses are the *National Historic Preservation Act of 1966* (NHPA) (54 U.S.C. §§ 300101 et seq.), the *Archaeological Resources Protection Act* (16 U.S.C. §§ 470aa–470mm), and the *Native Graves Protection and Repatriation Act* (25 U.S.C. §§ 3001–3013).

Section 106 of the NHPA requires federal agencies with jurisdiction over a proposed federal action (referred to as an "undertaking" under the NHPA) to take into account the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register of Historic Places (National Register). The term "historic properties" describes "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register" (36 CFR § 800.16(l)(1)).

As documented in the 1050.1G Desk Reference, the regulations implementing Section 106 require the FAA to consult with certain parties, such as the SHPO and the THPO of a Federally Recognized Indian Tribe pursuant to Section 1010(d)(2) of the NHPA. Consultation with THPO(s) occurs if an undertaking is occurring on tribal lands or if an undertaking's Area of Potential Effects (APE) is located outside tribal lands but includes historic resources of religious and cultural significance to a tribe. The purpose of consultation is to identify potentially affected historic properties, assess effects to such properties, and seek ways to avoid, minimize, or mitigate any adverse effects on such properties. The agency also must provide an opportunity for public involvement (36 CFR § 800.1(a)). Consultation with Federally Recognized Indian Tribes regarding issues related to Section 106 must recognize the government-to-government relationship between the Federal Government and Native American tribes as set forth in Executive Order (EO) 13175, "*Consultation and Coordination with Indian Tribal Governments*" and the Presidential Memorandum on Tribal Consultation, dated November 5, 2009.

Consultation under Section 106 is not required if the undertaking has no potential to affect historic properties. The regulations implementing Section 106 state: "If the undertaking is a type of activity that does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under section 106 of this part." (36 CFR § 800.3(a)(1)).

As discussed in FAA Order 1050.1G, the FAA has not established a significance threshold for Historical, Architectural, Archaeological, and Cultural Resources. Whether an action would result in a finding of adverse effect through the Section 106 process is a consideration when assessing the significance of an impact. However, a finding that an adverse effect has occurred does not necessarily mean an impact is significant; nor would it necessarily require the preparation of an Environmental Impact Statement. Should an adverse effect be determined to have occurred, the Section 106 process would be resolved through a Memorandum of Agreement or Programmatic Agreement to record resolution measures to mitigate or minimize adverse effects.

3.5.2 Affected Environment

Two APEs were established pursuant to 36 CFR § 800.4(a), each encompassing approximately 175 sq mi occurring within a 7.5-mi radius surrounding each PADCC. According to geospatial data published by the National Park Service, there are 57 historic resources listed in the National Register located in the APEs. Additionally, there is one National Register-eligible resource, and 10 resources listed by the state of Kansas located in the APEs. Historic resources occurring within the APE are listed in Tables D-1 and D-2 of **Appendix D-1**.

3.5.3 Environmental Consequences

3.5.3.1 No Action Alternative

Under the No Action Alternative, the FAA would not issue the approvals necessary to enable Prime Air to conduct drone commercial drone package delivery operations in the Kansas City area. As such, there would be no impact on any historical, architectural, archaeological, or cultural resources.

3.5.3.2 Proposed Project

As outlined in 36 CFR § 800.5(a), an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. The undertaking does not include any actions that would physically alter a historic property in any way, nor would it change the use of a historic property or involve the transfer of property out of Federal ownership. Any adverse effects that may result from the undertaking are limited to the potential introduction of visual, atmospheric, or audible elements that could diminish the integrity of the property’s significant historic features.

The noise modeling methodology and methods presented in **Section 3.6** are suitable for the evaluation of Federal actions in compliance with NEPA and other applicable environmental regulations or federal review standards at the discretion and approval of the FAA. In particular, the analysis is intended to function as a nonstandard equivalent methodology under FAA Order 1050.1G, and therefore, required prior written consent from the FAA's Office of Environment and Energy for each project seeking a NEPA determination. The number of daily drone operations would be limited such that any historic or cultural resource would only be subject to a small number of overflights per day. Furthermore, the noise analysis presented in Section 3.6 concluded that noise levels would be below the FAA’s threshold for significance, even in areas with the highest noise exposure, such as those within 0.5 miles of the PADDC.

The FAA has not developed a visual effects significance threshold; however, factors the 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. The Proposed Undertaking makes no changes to any landforms or land uses, and visual effects would be short-term in nature; thus, there would be no effect to the visual character of the area. Excluding ground-based activities supporting the drones, operations would be occurring in airspace only. The FAA estimates that, at typical operating altitude and speeds, the drone would be observable for approximately 3.6 seconds during en route flight by an observer on the ground.

The effect of drone operations on historic properties would be limited to non-physical, reversible impacts such as the introduction of audible and/or visual elements. The number of daily drone operations would be limited such that any historic or cultural resource would only be subject to a small number of overflights per day. Furthermore, as described in **Section 3.6**, a noise analysis concluded that noise levels would be below the FAA's threshold for significance, even in areas with the highest noise exposure.

For the Proposed Action, the FAA initiated consultation with the KS SHPO on June 25, 2025, seeking concurrence with the FAA's definition of the APEs and a finding of *no adverse effects*. On July 2, 2025, the KS SHPO issued a written determination that the "proposed project will not adversely affect any National Register-listed or National Register-eligible properties."

The FAA initiated consultation with the MO SHPO on June 17, 2025, seeking concurrence with the FAA's definition of the APEs and a finding of *no adverse effects*. On July 23, 2025, the MO SHPO issued a written concurrence with the FAA's determination that "the proposed undertaking would have no adverse effects."

Copies of the SHPO consultations are included in **Appendix D-1**.

The FAA also consulted with the following tribal governments, via email and regular mail, on July 10, 2025, that may potentially attach religious or cultural significance to resources in the APE:

- Absentee Shawnee Tribe of Oklahoma
- Cheyenne and Arapaho Tribes of Oklahoma
- Delaware Nation
- Delaware Tribe of Indians
- Eastern Shawnee Tribe of Oklahoma*
- Iowa Tribe of Kansas and Nebraska*
- Iowa Tribe of Oklahoma
- Kaw Nation of Oklahoma
- Kickapoo Tribe in Kansas
- Kiowa Tribe of Oklahoma
- Miami Tribe of Oklahoma

- Nez Perce Tribe
- Omaha Tribe of Nebraska
- The Osage Nation
- Otoe-Missouria Tribe of Indians, Oklahoma
- Pawnee Nation of Oklahoma
- Ponca Tribe of Indians of Oklahoma
- Ponca Tribe of Nebraska
- Prairie Band Potawatomi Nation
- Sac and Fox Nation of the Missouri in Kansas and Nebraska
- Sac and Fox Nation, Oklahoma
- Sac and Fox Tribe of the Mississippi in Iowa
- Shawnee Tribe
- Stockbridge-Munsee Band of Mohican Indians*
- Wichita and Affiliated Tribes
- Wyandotte Nation

Tribal organizations that responded to Government-to-Government consultation are denoted with "*" above; none indicated concerns with the Proposed Action.

A copy of representative Government-to-Government correspondence with potentially interested tribal governments, as well as all tribal government responses, are included in **Appendix D-2**.

3.5.3.3 Reasonably Foreseeable Effects

The introduction of Prime Air's drone operations may occur in areas subject to other aviation activity, necessitating the evaluation of reasonably foreseeable effects on historical, architectural, archaeological, and cultural resources when combined with other aviation operations. Prime Air's drone operations would have limited non-physical, reversible impacts on historic properties such as the introduction of audible and/or visual elements. Furthermore, as described in **Section 3.6**, a noise analysis concluded that noise levels would be below the FAA's threshold for significance, even in areas with the highest noise exposure. SHPO offices within Prime Air's proposed areas of operations also concurred with the FAA's determination the Proposed Action would have no adverse effects. In the future, other drone operations or aviation activity may be proposed to operate with this Proposed Action's operating areas. Should that occur, Prime Air understands the potential for impacts may increase due to the introduction of additional drone or other aviation activity and would work with operators and the FAA to mitigate potential impacts. The FAA would also conduct a new environmental analysis—including evaluating reasonably foreseeable effects on historical, architectural, archaeological, and cultural resources and consultation with SHPOs and tribal governments, as appropriate—prior to the commencement of drone operations or other aviation activity in these areas.

3.6 Noise and Noise-Compatible Land Use

3.6.1 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. To ensure that noise would not cause a significant impact on any residential land use or noise sensitive resource within the operating areas, the FAA initiated an analysis of the potential noise exposure in the area that could result from implementation of the Proposed Action.

FAA Order 1050.1G, Appendix C, requires the FAA to identify the location and number of noise sensitive areas that could be significantly impacted by noise. As defined in FAA Order 1050.1G, *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 and reduced sensitivity for lower and highest frequencies. Unless otherwise noted, all sound levels discussed in this document should be understood to be A-weighted.

To comply with NEPA requirements, the FAA has issued requirements for assessing aircraft noise in Appendix C of FAA Order 1050.1G. The 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 averaged aircraft sound level at a location over a 24-hour period, with a 10 dB adjustment added to those noise events occurring from 10 p.m. to 7 a.m. A significant noise impact is defined in Order 1050.1G as an increase in noise of DNL 1.5 dB or more at or above DNL 65 dB noise exposure or a noise exposure at or above the 65 dB level due to a DNL 1.5 dB or greater increase at a noise sensitive receiver (e.g., residential).

3.6.2 Affected Environment

As shown in **Figure 2-3**, each operating area covers approximately 175 sq mi, and the estimated population is roughly 244,000 for the MKC6 operating area and 219,000 for the SMO1 operating area. The population density is approximately 1,400 and 1,250 people per sq mi for the MKC6 and SMO1 operating areas, respectively.[46] There are three airports/airfields and six heliports located in the MK30 drone's proposed areas of operation, as listed in **Table 3-3**:[47]

[46] Environmental Protection Agency (EPA), Environmental Justice Screening Tool (EJSCREEN), accessed December 24, 2024, https://www.epa.gov/ejscreen.

[47] It is necessary to evaluate the cumulative noise exposure in areas subject to other aviation noise sources.

TABLE 3-3
AIRPORTS AND HELIPORTS WITHIN EACH DRONE OPERATING AREA

FAA Identifier	Name	Facility Type	PADDC Operations Area(s)	Airspace Classification
6KS9	Providence Medical Center Heliport	Heliport	MKC6	—
10KS	University Of Kansas Hospital Heliport	Heliport	MKC6	—
9KS2	Shawnee Mission Medical Center Heliport	Heliport	MKC6	—
MU26	Robinson Airport	Airport	SMO1	G
63K	Hillside Airfield	Airport	SMO1	G
MU46	Arrowhead Airpark	Airport	SMO1	G, Private
SN35	Menorah Medical Park Heliport	Heliport	SMO1	—
MO21	St Joseph Medical Center Heliport	Heliport	SMO1	—
MU61	Belton Regional Medical Center Heliport	Heliport	SMO1	—

Source: ESRI, 2023.

3.6.3 Environmental Consequences

3.6.3.1 No Action Alternative

Under the No Action Alternative, the FAA would not issue the approvals necessary to enable Prime Air to conduct commercial drone package delivery operations in the Kansas City area. As such, no impacts on compatible land use would occur.

3.6.3.2 Proposed Action

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 acoustic frequency content (pitch).[48] Drone noise generally has high-frequency acoustic content, which can often be more discernable from other typical noise sources.

To ensure that noise would not cause a significant impact on any noise sensitive area within the action area, the FAA initiated an analysis of the potential noise exposure in the area that could result from implementation of the Proposed Action. Except for on the actual PADDC property, the rural, commercial, and residential properties that are adjacent to the PADDC location are likely to experience the highest noise levels as a result of the Proposed Action. This is due to noise from drone departures from and arrivals to the PADDC, as well as more concentrated en route noise from the drone transiting to and from the PADDC.

[48] Federal Aviation Administration (FAA), *Fundamentals of Noise and Sound*, last updated July 22, 2022, accessed April 30, 2024, https://www.faa.gov/noise/aviation_noise/fundamentals_of_noise.

Noise Exposure

Utilizing the operational projections defined in **Chapters 1** and **2**, the noise analysis methodology detailed in **Appendix E** was used to estimate DNL levels for the proposed Kansas City operations. Noise levels were calculated for each flight phase and are presented in the following three sub-sections:

- Noise Exposure for PADDC Operations
- Noise Exposure for En Route Operations
- Noise Exposure for Delivery Operations

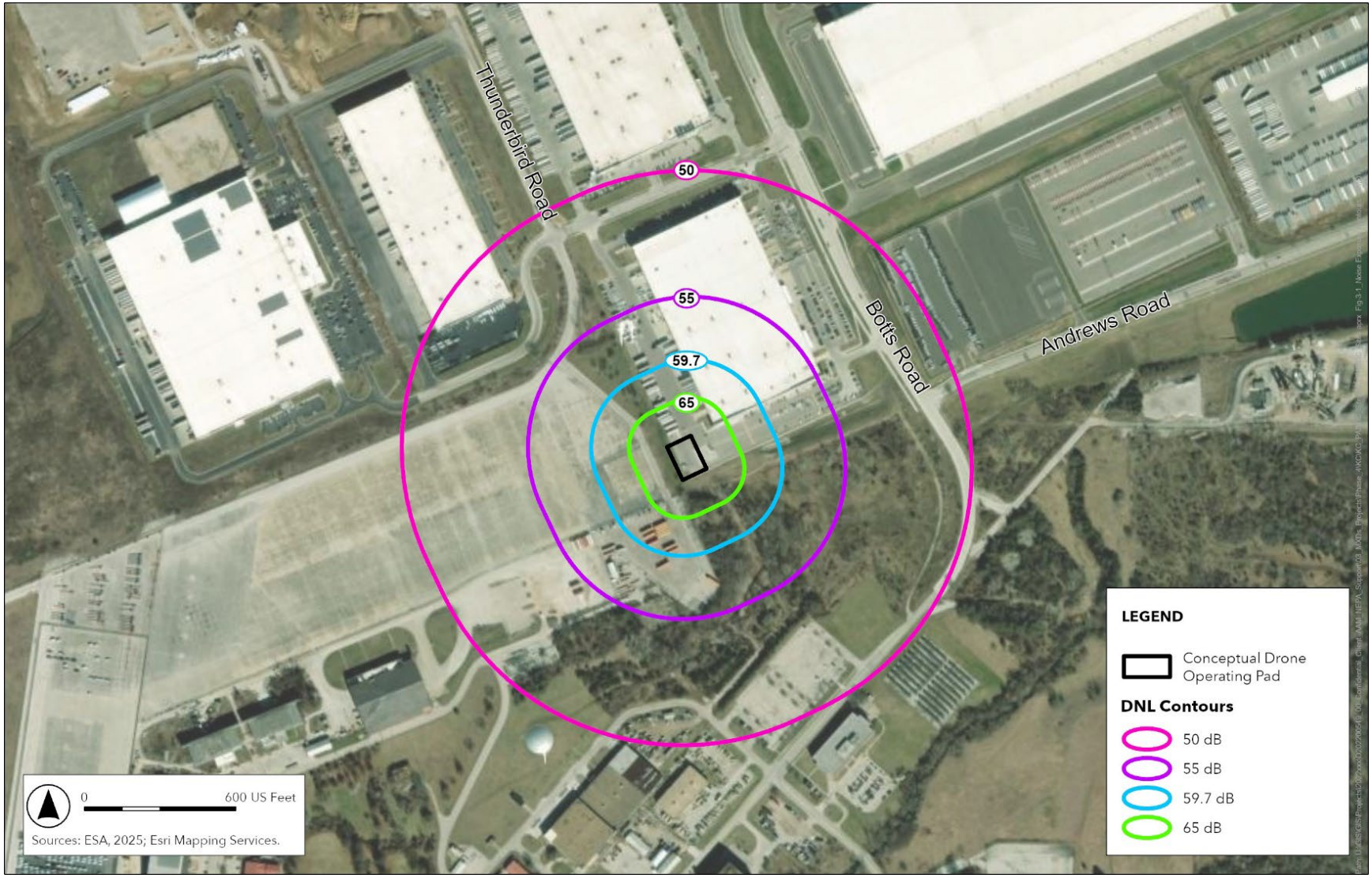
Noise Exposure for PADDC Operations

Based on the anticipated average daily maximum of 1,000 deliveries provided by Prime Air for each PADDC, with 100 of the 1,000 daily deliveries occurring during the period from 6 a.m. to 7 a.m. and 10 p.m. to 10:30 p.m., the extent of noise exposure associated with PADDC operations are shown in **Figures 3-1** and **3-2**. This region was determined based on a review of the layout of the PADDC locations and using the noise level information presented in **Table 6** of the Technical Noise Report in **Appendix E**. The noise analysis includes a 10 dB penalty which is applied to the 100 operations that are anticipated to occur during the nighttime period from 10 p.m. to 7 a.m. and is equivalent to 1 nighttime operation being counted as 10 daytime operations. These 100 nighttime delivery operations would be equivalent to 1,000 daytime deliveries and, when combined with the daytime operations, would be equivalent to a combined total of 1,900 daytime equivalent delivery operations. **Table 3-4** provides the extent of noise exposure for PADDC operations for the DNL 65 dB and lower noise levels. Note that the data presented in **Table 3-4** only includes noise exposure associated with PADDC operations.

TABLE 3-4
ESTIMATED EXTENT OF NOISE EXPOSURE FROM EACH PADDC

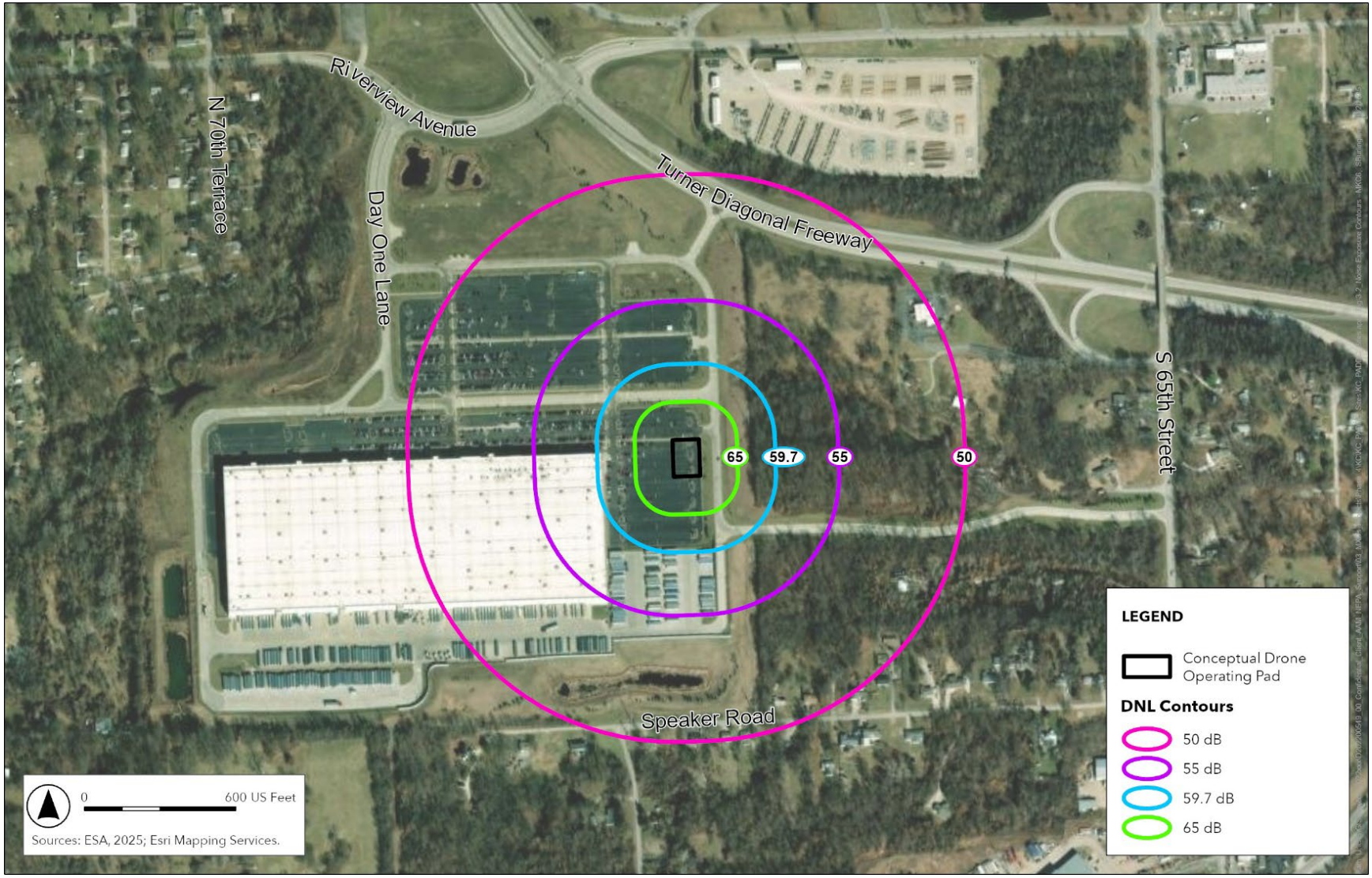
Annual Average Daily DNL Equivalent Deliveries	Annual DNL Equivalent Deliveries	DNL 50 dB	DNL 55 dB	DNL 59.7 dB	DNL 60 dB	DNL 65 dB
≤1,900	≤693,500	1,050 feet	550 feet	300 feet	300 feet	150 feet

Source: ESA, 2025.



Source: ESA, 2025; Esri Mapping Services.

Figure 3-1
SMO1 PADDC Noise Contours



Source: ESA, 2025; Esri Mapping Services.

Figure 3-2
MKC6 PADDC Noise Contours

Noise Exposure for En Route Operations

As described in the Technical Noise Report in **Appendix E**, the drone is expected to typically fly the same outbound flight path between the PADDC's and the delivery points and inbound flight path back to the PADDC's. While the average daily deliveries from each PADCC would be 1,000, the number of overflights in a day would be dispersed because the PADCCs are centrally located in the proposed operating areas and delivery locations would be distributed throughout the proposed operating areas. A conservative estimate for the maximum number of overflights over any one location would be half, or 500 daily delivery overflights. To account for operations from PADCC's during the period from 6 a.m. to 7 a.m. and from 10 p.m. to 10:30 p.m., it is assumed approximately 50 of the 500 daily delivery overflights (10%) would occur during these periods. These 50 nighttime delivery overflight operations would be equivalent to 500 daytime deliveries. When combined with the daytime delivery overflight operations, this would be representative of a combined total of 950 daytime equivalent delivery overflight operations. Since each delivery involves both an outbound and inbound flight path, this equates to 1,900 daily overflights. The en route noise exposure can be determined by referencing **Tables 7** and **8** of the Technical Noise Report in **Appendix E**. This analysis shows that en route noise levels could reach DNL 46.0 dB in any location within each operating area.

Noise Exposure for Delivery Operations

Due to the inherent uncertainty of the exact delivery site locations, the noise analysis developed a minimum and maximum representative average annual daily distribution of deliveries that could occur at a single delivery location in each operating area. The distribution of average annual daily deliveries ranges from one to four deliveries per operating day and conservatively assumes that at least one delivery will occur during the nighttime period between 6 a.m. and 7 a.m. and 10 p.m. and 10:30 p.m. This nighttime delivery is equivalent to 10 daytime deliveries, and when combined with daytime deliveries, is equivalent to a total combined maximum of 13 equivalent daytime delivery operations. The noise exposure for delivery operations includes outbound and inbound en route overflights at the typical operating altitude range of 180 to 377 ft AGL for operations associated with deliveries to other locations. The outbound en route altitude is expected to be flown between 180 and 279 ft AGL. The inbound en route altitude is expected to be flown between 279 and 377 ft AGL back to the PADDC.

A conservative estimate of delivery noise exposure can then be determined by referencing **Table 9** of the Technical Noise Report in **Appendix E**. The estimated delivery DNL includes values at the minimum and maximum distribution of DNL equivalent deliveries at various distances from the delivery point. They include the minimum listener distance from the delivery point at 16.4 ft, which is representative of the closest distance a person may approach before the drone takes automated actions to safely cancel the delivery. This is in addition to the minimum measured distance from the drone for which noise measurement data was available for a delivery, which is 25 ft. Values were also calculated at distances of 50 ft, 75 ft, 100 ft, and 125 ft from the delivery point, and are representative of distances from which nearby properties may experience noise from a delivery based on the average lot size for sold homes as

reported in the 2022 US Census.[49] The noise exposure for any one delivery point (with en route noise as mentioned above) is provided in **Table 3-5**.

TABLE 3-5
DNL FOR DELIVERY LOCATIONS BASED ON MAXIMUM DELIVERIES PER LOCATION

Operating Area Overlaps	Average Daily DNL Equivalent Deliveries	Annual DNL Equivalent Deliveries	Estimated Delivery DNL at 16.4 Feet[1]	Estimated Delivery DNL at 25 Feet[2]	Estimated Delivery DNL at 50 Feet	Estimated Delivery DNL at 75 Feet	Estimated Delivery DNL at 100 Feet	Estimated Delivery DNL at 125 Feet
0[3]	≤15	<= 5,475	57.2	55.1	51.8	50.2	48.9	48.1

Notes:

1. Minimum possible listener distance from drone.
2. Minimum measured listener distance.
3. Assumes conservative estimate of overflights associated with 500 deliveries or 937 overflights (with nighttime equivalent operations), over any one delivery location as mentioned above. DNL values are calculated from the logarithmic summation of the DNL values presented in Table 9 for deliveries with the en route noise level of DNL 45.9 dB derived from Tables 7 and 8 in the Noise Technical Report in Appendix E.

Source: ESA, 2025.

Table 3-5 shows that, with the maximum number of average annual daily deliveries at a single location, including overflights, noise levels for the estimated number of deliveries will not exceed the FAA's significance threshold for noise of DNL 65 dB in any of the areas where Prime Air anticipates conducting deliveries.

Total Noise Exposure Results

The maximum noise exposure levels within the operating area would occur at the PADDC site where noise levels at or above DNL 50 dB would extend approximately 1,050 ft from each PADDC. Noise levels at or above DNL 65 dB would extend approximately 150 ft from the PADDC. No residential or other noise sensitive receivers would be exposed to noise levels of DNL 50 dB or greater associated with PADCC operations. Additionally, the estimated noise exposure for en route operations could reach up to DNL 46 dB at any location within each operating area. Lastly, the resulting noise exposure at any residential-zoned property line would not be expected to exceed DNL 48.1 dB.

As explained in **Section 3.6.1** above, the FAA has an established noise significance threshold, defined in FAA Order 1050.1G, which is used when assessing noise impacts in a particular operating area. A significant noise impact is defined as an increase in noise of DNL 1.5 dB or more at or above DNL 65 dB noise exposure or a noise exposure at or above the 65 dB level due to a DNL 1.5 dB or greater increase. Based on the results of the noise analysis performed for this EA, noise impacts from operations are not expected to result in a significant impact. Noise generated by the operations is also not expected to be incompatible with noise sensitive resources within each operating area.

[49] The 2022 US Census national average lot size for single-family sold homes was 15,265 sq ft. This is representative of a property with dimensions of a 123.55 x 123.55 ft sq. 125 ft represents a 125-ft lateral width of the parcel rounded up to the nearest 25 ft, accessed January 18, 2024, https://www.census.gov/construction/chars/xls/soldlotsize_cust.xls.

3.6.3.3 Reasonably Foreseeable Effects

Per FAA Order 1050.1G, Appendix C,[50] if any "airspace or procedure actions" are introduced, these actions must be assessed to determine if any of the following increases result from the action:

- For DNL 65 dB and higher: ± 1.5 dB
- For DNL 60 dB and higher: ± 3 dB[51]
- For DNL 45 dB to < 60 dB: ± 5 dB[52]

FAA Order 1050.1G defines a "significant impact" as an action that results in ±1.5 dB change within the DNL 65 noise exposure contour over a noise-sensitive land use. A "reportable" change is a ±3 dB-change within the DNL 60 or a ±5 dB-change within the DNL 45.

Because drone operations would occur in areas subject to other aviation noise sources, it is necessary to evaluate the reasonably foreseeable noise exposure that would result from introducing the other aviation noise sources present. Examples of such scenarios are drone operations occurring in the vicinity of Prime Air's operating areas with increased aviation activity (e.g., where other commercial drone operators may operate or operations close to airports). Aircraft-related noise sources are most likely to be the dominant contributors to noise exposure near airports. By comparison, other sources of noise would not appreciably contribute to overall noise levels at these locations.

As discussed in **Section 3.6.2**, there are three airports/airfields and six heliports located in the proposed areas of operations. Of which, the controlled surface area of Class D airspace for two of the airports, Kansas City Downtown Coleman A Field (MKC) and Johnson County Executive Airport (OJC), overlaps with portions of the drone's proposed areas of operations. For areas where the drone operating area does not overlap with Class D airspace, there would be little potential for the reasonably foreseeable effect of traditional aircraft noise combined with drone noise. The conservative estimate of DNL 54.1 dB represents the threshold at which a reportable change of 5 dB would occur, as defined by FAA requirements for areas where DNL falls between 45 dB and less than 60 dB. While this increase may be perceptible, it is unlikely to result in significant adverse land use impacts, as shown in **Table 3-6**.

[50] FAA National Environmental Policy Act Implementing Procedures, effective June 30, 2025, https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050.1G.pdf.

[51] The FAA considers these increases to be "reportable," but not a significant impact.

[52] The FAA considers these increases to be "reportable," but not a significant impact.

TABLE 3-6
REASONABLY FORESEEABLE NOISE EXPOSURE

Noise Source	Description	DNL (dB)	Energy 10(DNL/10)	Combined Noise Sources in DNL (dB)
1	Proposed Action[1]	57.5	562,341.3	-
2	Airports within Study Area	54.1	257,039.6	-
1+2	Proposed Action + Airports	-	819,380.9	59.1
Delta	Reasonably Foreseeable Change in Noise Exposure	-	-	5.0

Notes:
1. Proposed Action DNL based off exposure at delivery site location to assume conservative estimates.
Source: ESA, 2025.

Additionally, Prime Air's flight route planning software would take into account air traffic to avoid dense airspace restrictions, such as airport runways and heliports. This would help avoid potential noise-related reasonably foreseeable effects on the air traffic near controlled surfaces. There are no other known Part 135 commercial drone package delivery operators conducting operations in proximity to Prime Air's proposed MK30 drone operations areas or the PADDCs, which are located in areas zoned for commercial activities. As such, the addition of Prime Air's commercial delivery service is not expected to result in reasonably foreseeable effects on other potential Part 135 commercial drone operations. Any future Part 135 operators would be required to work with the FAA to complete an environmental review before beginning operations, ensuring that any potential reasonably foreseeable effects are properly analyzed and disclosed, and the appropriate siting of potential drone operating facilities would be considered to avoid a significant impact on the environment.

In the future, other drone operators may propose locating operations within this Proposed Action's operating areas. Should that occur, Prime Air understands the potential for impacts may increase due to another operator's activities and would work with that operator and the FAA to mitigate potential impacts. Additionally, the FAA would conduct a new environmental analysis—including noise and reasonably foreseeable impacts—prior to another operator beginning drone package delivery operations in these areas. Areas of existing aviation noise sources within the operating areas would be avoided; thus, the Proposed Action would not contribute to significant reasonably foreseeable noise impacts.

3.7 Visual Effects (Visual Resources and Visual Character)

3.7.1 Regulatory Setting

Visual resources and visual character impacts deal with the extent to which a proposed action would result in visual impacts on resources in the operating area. Visual impacts can be difficult to define and evaluate because the analysis is generally subjective but are normally related to the extent that a 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 drone in flight—which could be out of character with the suburban or natural landscapes.

The FAA has not developed a visual effects significance threshold. Factors the 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 operating area; or (3) block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.

3.7.2 Affected Environment

The Proposed Action would take place over a combination of suburban and rural properties. As noted in **Section 3.4**, there are public parks that could be valued for aesthetic attributes within the operating areas. Prime Air's proposal is to avoid overflights of large open-air gatherings of people during the scope of the Proposed Action, which includes public parks and other public properties that may be covered under Section 4(f) (which are identified in **Appendix C**).

3.7.3 Environmental Consequences

3.7.3.1 No Action Alternative

Under the No Action Alternative, the FAA would not issue the approvals necessary to enable Prime Air to conduct drone commercial drone package delivery operations in the Kansas City area. As such, there would be no visual impacts associated with the No Action Alternative.

3.7.3.2 Proposed Action

The Proposed Action makes no changes to any landforms or land uses, and visual effects would be short-term in nature; thus, there would be no effect to the visual character of the area. Excluding ground-based activities supporting the drones, operations would be occurring in airspace only. The FAA estimates that at typical operating altitude and speeds the drone en route would be observable for approximately 3.6 seconds by an observer on the ground. The Proposed Action involves airspace operations that are unlikely to result in visual impacts anywhere in the operating areas, including Section 4(f) properties. The short duration that each drone flight could be seen from any resource in the operating area—approximately 3.6 seconds while the drone is traveling en route at 52.4 knots (approximately 60 mph)—and the distribution of flights throughout each 175-sq-mi operating area, would minimize any potential for significant visual impacts at any location in the operating areas. Any visual effects are expected to be similar to existing air traffic in the vicinity of the operating areas. Therefore, the Proposed Action would not result in significant visual impacts.

3.7.3.3 Reasonably Foreseeable Effects

The introduction of Prime Air's drone operations may occur in areas subject to other aviation activity, necessitating the evaluation of reasonably foreseeable effects on visual impacts when combined with other aviation operations. Prime Air's drone operations make no changes to any landforms or land uses, and visual effects would be short-term in nature; thus, there would be no effect on the visual character of the area. Furthermore, the distribution of flights throughout each proposed operating area would minimize any potential for significant visual impacts at any location and any visual effects are expected to be similar to existing air traffic in the vicinity of the operating areas and not be significant. In the future, other drone operations or aviation activity may be proposed to operate with this Proposed Action's

operating areas. Should that occur, Prime Air understands the potential for visual impacts may increase due to the introduction of additional drone or other aviation activity and would work with operators and the FAA to mitigate potential impacts. The FAA would also conduct a new environmental analysis—including evaluating reasonably foreseeable effects on visual impacts—prior to the commencement of drone operations or other aviation activity in these areas.

CHAPTER 4
List of Preparers and Agencies Consulted

4.1 Preparers

Name and Affiliation	Years of Industry Experience	EA Responsibility
FAA Evaluators		
Christopher Hurst REM, CEA, CESCO, FAA AFS (Office of Safety Standards, Flight Standards Service) General Aviation Operations	20	Environmental Protection Specialist, Document Review
Christopher Couture, FAA AQS (Aviation Safety, Quality, Integration, and Executive Services)	17	Environmental Protection Specialist, Document Review
Adam Scholten, FAA AEE (Office of Environment and Energy, Noise Division [AEE-100])	13	Environmental Protection Specialist, Noise Analysis and Document Review
Susumu Shirayama, FAA AEE (Office of Environment and Energy, Noise Division [AEE-100])	22	Environmental Protection Specialist, Noise Analysis and Document Review
Preparers		
Mike Arnold/ESA	34	QA/QC review
Sean Burlingame/ESA	17	NEPA documentation
Patricia Davis/ESA	4	NEPA documentation
Patrick Hickman/ESA	14	NEPA documentation
Sarah McAbee/ESA	16	NEPA documentation
Scott McIntosh/ESA	12	Noise Modeling
Chris Nottoli/ESA	10	Noise modeling
Brendon Quinton/ESA	8	NEPA documentation
Susan Shaw/ESA	23	NEPA documentation
Neal Wolfe/ESA	23	Project Manager, NEPA documentation

4.2 Agencies Consulted

List of Agencies Consulted
U.S. Fish and Wildlife Service, Missouri Ecological Services Field Office
U.S. Fish and Wildlife Service, Kansas Ecological Services Field Office
Missouri State Historic Preservation Office
Kansas State Historic Preservation Office
Absentee Shawnee Tribe of Oklahoma
Cheyenne and Arapaho Tribes of Oklahoma
Delaware Nation
Delaware Tribe of Indians
Eastern Shawnee Tribe of Oklahoma
Iowa Tribe of Kansas and Nebraska
Iowa Tribe of Oklahoma
Kaw Nation of Oklahoma
Kickapoo Tribe in Kansas
Kiowa Tribe of Oklahoma
Miami Tribe of Oklahoma
Nez Perce Tribe
Omaha Tribe of Nebraska
The Osage Nation
Otoe-Missouria Tribe of Indians, Oklahoma
Pawnee Nation of Oklahoma
Ponca Tribe of Indians of Oklahoma
Ponca Tribe of Nebraska
Prairie Band Potawatomi Nation
Sac and Fox Nation of the Missouri in Kansas and Nebraska
Sac and Fox Nation, Oklahoma
Sac and Fox Tribe of the Mississippi in Iowa
Shawnee Tribe
Stockbridge-Munsee Band of Mohican Indians
Wichita and Affiliated Tribes
Wyandotte Nation

DECLARATION RELATED TO PAGE LIMITS: The FAA has considered the factors mandated by NEPA and the EA represents the FAA's good-faith effort to prioritize documentation of the most important considerations required by the statute within the congressionally mandated page limits. This prioritization reflects the FAA's expert judgment, and any considerations addressed briefly or left unaddressed were, in the FAA's judgment, comparatively not of a substantive nature that meaningfully informed the consideration of environmental effects and the resulting decision on how to proceed.

DECLARATION RELATED TO DEADLINE: The EA represents the FAA's good-faith effort to fulfill NEPA's requirements within the Congressional timeline and is substantially complete. In the FAA's expert opinion, the FAA has thoroughly considered the factors mandated by NEPA. In the FAA's judgment, the analysis contained herein is adequate to inform and reasonably explain the FAA's final decision regarding the proposed federal action.