Federal Aviation Administration

Draft Environmental Assessment for Amazon Prime Air Package Delivery Operations in Detroit, MI

January 2026

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

Notice of Availability, Notice of Public Comment Period, and Request for Comment on the Draft Environmental Assessment for Amazon Prime Air Package Delivery Operations in Detroit, MI

The Federal Aviation Administration (FAA) provides notice that a Draft Environmental Assessment (EA), prepared pursuant to the National Environmental Policy Act (NEPA) (42 United States Code §§ 4321–4355), to assess Amazon Prime Air's proposed commercial drone delivery service in Detroit, MI, is available for review and comment.

Amazon Prime Air is seeking to amend its air carrier Operation Specifications (OpSpecs) and other FAA approvals necessary to expand commercial drone delivery operations in Detroit, MI. The FAA's approval of the amended OpSpecs is considered a major federal action under NEPA and requires a NEPA review. The Draft EA is submitted for review pursuant to NEPA, FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures*, Section 4(f) of the Department of Transportation Act (49 U.S.C. § 303), and Section 106 of the National Historic Preservation Act (16 U.S.C. § 470). The Draft EA will be available for a 30-day public review beginning on January 19, 2026, and ending on February 17, 2026.

The Draft EA is available for online review at https://www.faa.gov/uas/advanced_operations/nepa_and_drones

Comments on the Draft EA may be submitted electronically to 9-faa-drone-environmental@faa.gov. Written comments may be submitted via U.S. Mail to the address below. Please ensure adequate time for receipt. All comments must be received by 5 p.m. Central time on February 17, 2026.

Federal Aviation Administration, Suite 802W
c/o AVS Environmental
800 Independence Ave SW
Washington, DC 20591

All substantive comments received will be responded to in the Final EA.

PRIVACY NOTICE: Before including your address, phone number, email address, or other personal identifying information in your comment, be advised that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

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

Responsible FAA Official:

_____ Date: _____

Derek Hufty
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DEPARTAMENTO DE TRANSPORTACIÓN | Administración Federal de Aviación
Washington, D.C.

Aviso de Disponibilidad, Aviso de Período de Comentarios Públicos, y Solicitud de Comentarios sobre el Borrador de la Evaluación Ambiental para las Operaciones de Entrega de Paquetes de Amazon Prime Air en Detroit, MI.

La Administración Federal de Aviación (FAA, por sus siglas en inglés) notifica que el Borrador de Evaluación Ambiental (EA, por sus siglas en inglés), elaborado conforme a la Ley Nacional de Política Ambiental (NEPA, por sus siglas en inglés) (Título 42 del Código de los Estados Unidos, §§ 4321–4355), para evaluar el servicio propuesto de entrega comercial de paquetes mediante drones de Amazon Prime Air en Detroit, MI, está disponible para revisión y comentarios.

Amazon Prime Air solicita enmendar sus Especificaciones de Operación (OpSpecs, por sus siglas en inglés) como transportista aéreo, así como otras aprobaciones de la FAA necesarias para expandir las operaciones de entrega comercial de paquetes mediante drones en Detroit, MI. La aprobación por parte de la FAA de las OpSpecs enmendadas se considera una acción federal importante conforme a NEPA y, por ende, requiere una revisión en virtud de dicha ley. El Borrador de EA se presenta para revisión de conformidad con NEPA, la Orden 1050.1G de la FAA, Procedimientos de Implementación de la Ley Nacional de Política Ambiental, la Sección 4(f) de la Ley del Departamento de Transportación (49 U.S.C. § 303) y la Sección 106 de la Ley Nacional de Preservación Histórica (16 U.S.C. § 470). El Borrador de EA estará disponible para revisión pública durante 30 días, comenzando el 19 de enero de 2026 y terminando el 17 de febrero de 2026.

El Borrador de EA está disponible para revisión en línea en:
https://www.faa.gov/uas/advanced_operations/nepa_and_drones

Puede someter sus comentarios al Borrador de EA mediante vía electrónica a: 9-faa-drone-environmental@faa.gov. También pueden someter comentarios escritos enviándolos por correo postal a la dirección que figura más abajo. Por favor, permita tiempo suficiente para su recepción. Todos los comentarios deben ser recibidos antes de las 5:00 p.m. (hora central) del 17 de febrero de 2026.

Federal Aviation Administration, Suite 802W
c/o AVS Environmental
800 Independence Ave SW
Washington, DC 20591

Todos los comentarios sustantivos recibidos serán considerados y se dará respuesta en la EA Final.

AVISO DE PRIVACIDAD: Antes de incluir su dirección, número de teléfono, correo electrónico u otra información de identificación personal (PII, por sus siglas en inglés) en su comentario, tenga en cuenta que todo el texto—incluyendo el PII—podría divulgarse públicamente en cualquier momento. Aunque en su comentario puede solicitarnos que su PII no se divulgue durante la revisión pública, no podemos garantizar que podamos atender dicha solicitud.

El Borrador de EA se convierte en documento federal una vez evaluado, firmado y fechado por el funcionario responsable de la FAA.

Funcionario responsable de la FAA:

_____ Fecha: _____

Derek Hufty
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Oficina de Estándares de Seguridad, Servicio de Normas de Vuelo de la FAA (Flight Standards Service)

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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 four new Prime Air Drone Delivery Centers (PADDC) located in the Detroit, MI area.

This Draft Environmental Assessment (EA) is being prepared by the FAA to evaluate the potential environmental impacts that may result from the FAA's approval of the Proposed Action, and the amendment of Prime Air's OpSpecs to grant airspace access to the MK30 drone in the proposed operating areas. For purposes of this Draft EA, the MK30 drone operating areas serve as the Study Areas and are further defined in Chapter 2.

The issuance or amendment of OpSpecs is considered a major federal action subject to environmental review requirements. The FAA has prepared this Draft 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 the 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 Current 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 per operating day at each PADDC 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%) expected 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 four 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, a battery storage area, paved departure and arrival pads, and perimeter fencing. All drone operations would originate from and terminate at one of the following four PADDC locations:

- **SMI1** – Located at 1400 E. Ten Mile Road, Hazel Park, MI, the proposed SMI1 PADDC site is zoned Industrial for light manufacturing, wholesale and warehousing[1] and is located east of Couzens Avenue and west of Vance Avenue,[2] as shown in **Figure 1-2**. The properties adjacent to the proposed SMI1 PADDC are a mix of privately-owned commercial, industrial, and residential. The closest residential neighborhood is approximately 1,500 feet (ft) west of the site.
- **STW1** – Located at 28803 Wixom Road, Wixom Logistics Center, Building D, Wixom, MI, the proposed STW1 PADDC site is zoned as a Gateway Planned Unit Development[3], approved for warehousing uses and airport uses with a special use permit (SUP), as shown in **Figure 1-3**. The site is located north of West Road and south of Wixom Tech Drive.[4] The properties adjacent to the proposed STW1 PADDC are a mix of privately owned commercial and industrial. The closest residential neighborhood is approximately 4,800 ft west of the site.
- **DET3** – Located at 1200 Featherstone Road, Pontiac, MI, the proposed DET3 PADDC is zoned as a Special Purpose District approved for warehousing and distribution uses[5] and is located north of State Road 59 and west of Vance Avenue,[6] as shown in **Figure 1-4**. The properties adjacent to the proposed DET3 PADDC are a mix of privately-owned commercial, industrial, and residential. The closest residential neighborhood is approximately 1,600 ft southwest of the site.
- **DET6** – Located at 20110 Woodward Avenue, Detroit, MI. The proposed DET6 PADDC is zoned for General Business[7], approved for warehousing use and is located immediately east of Ralston Street, north of W State Fair Avenue, and south of 8 Mile Road,[8,9] as shown in **Figure 1-5**. The properties adjacent to the proposed DET6 PADDC are a mix of privately-owned commercial, industrial, and residential. The closest residential neighborhood is approximately 1,200 ft south of the site.

1 M-1 Industrial Zone - https://cms4files1.revize.com/hazelparkmi/52manufacturing.updated2018.pdf.

2 https://cms4files1.revize.com/hazelparkmi/Hazel%20Park%20Zoning%20Map.pdf.

3 https://www.wixomgov.org/home/showpublisheddocument/11708/638627097758670000.

4 https://library.municode.com/mi/wixom/codes/code_of_ordinances?nodeId=TIT18ZO.

5 https://experience.arcgis.com/experience/4e66145b0a58405cbdfab8bc4a23882d.

6 Article 3 Chapter 9- https://www.codepublishing.com/MI/Pontiac/.

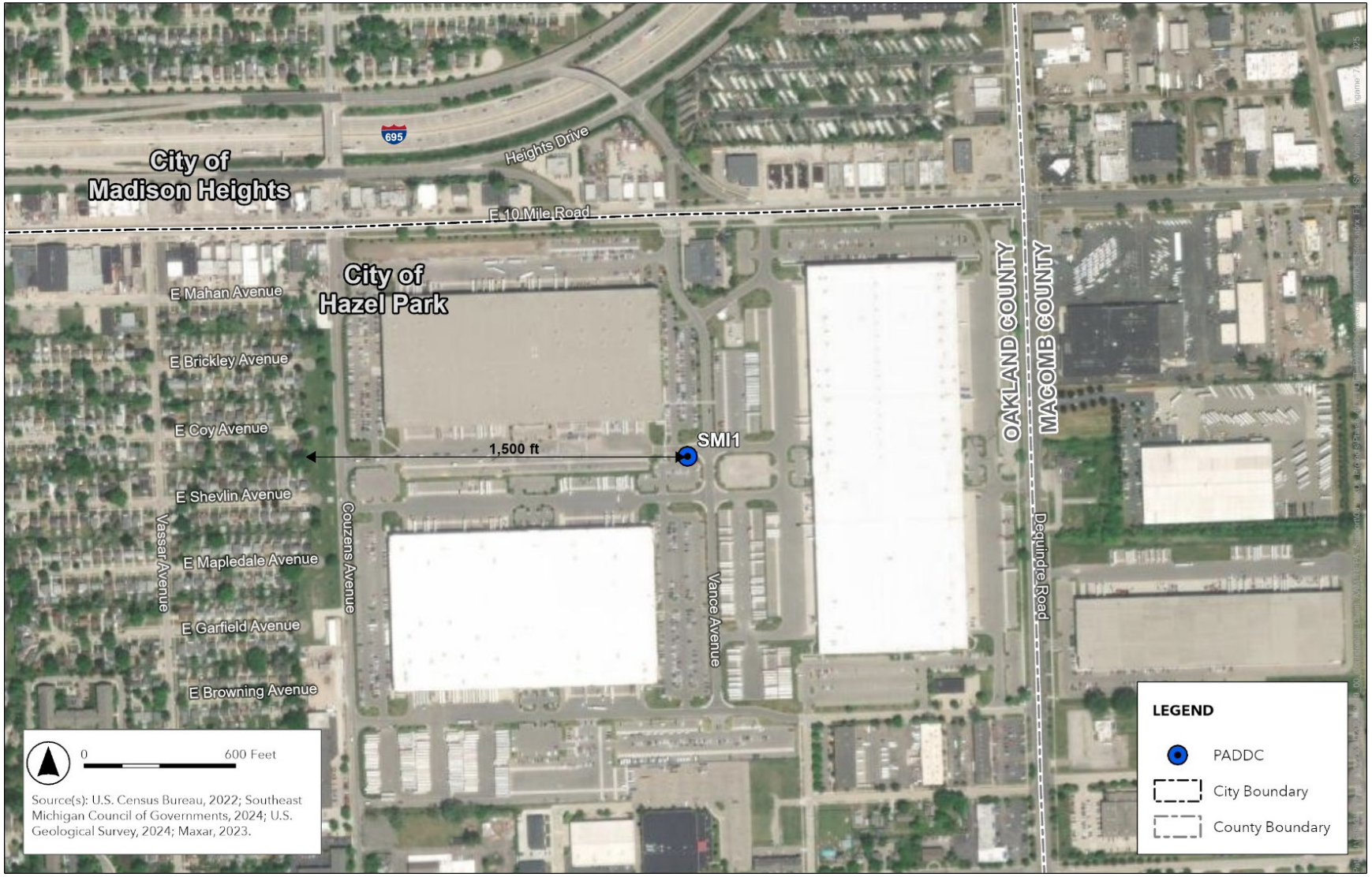
7 https://detroitmi.gov/sites/detroitmi.localhost/files/2024-08/zmap%2062%20perfecting.pdf.

8 https://library.municode.com/mi/detroit/codes/code_of_ordinances?nodeId=COCH50_CH50ZO_ARTIXBUZODI.

9 https://library.municode.com/mi/detroit/codes/code_of_ordinances?nodeId=COCH50_CH50ZO_ARTXIIUSRE_DIV1USTA_SDEMAINUS_S50-12-83WAFRMO.

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

Figure 1-1
Prime Air's Proposed PADDC Locations in Detroit, MI

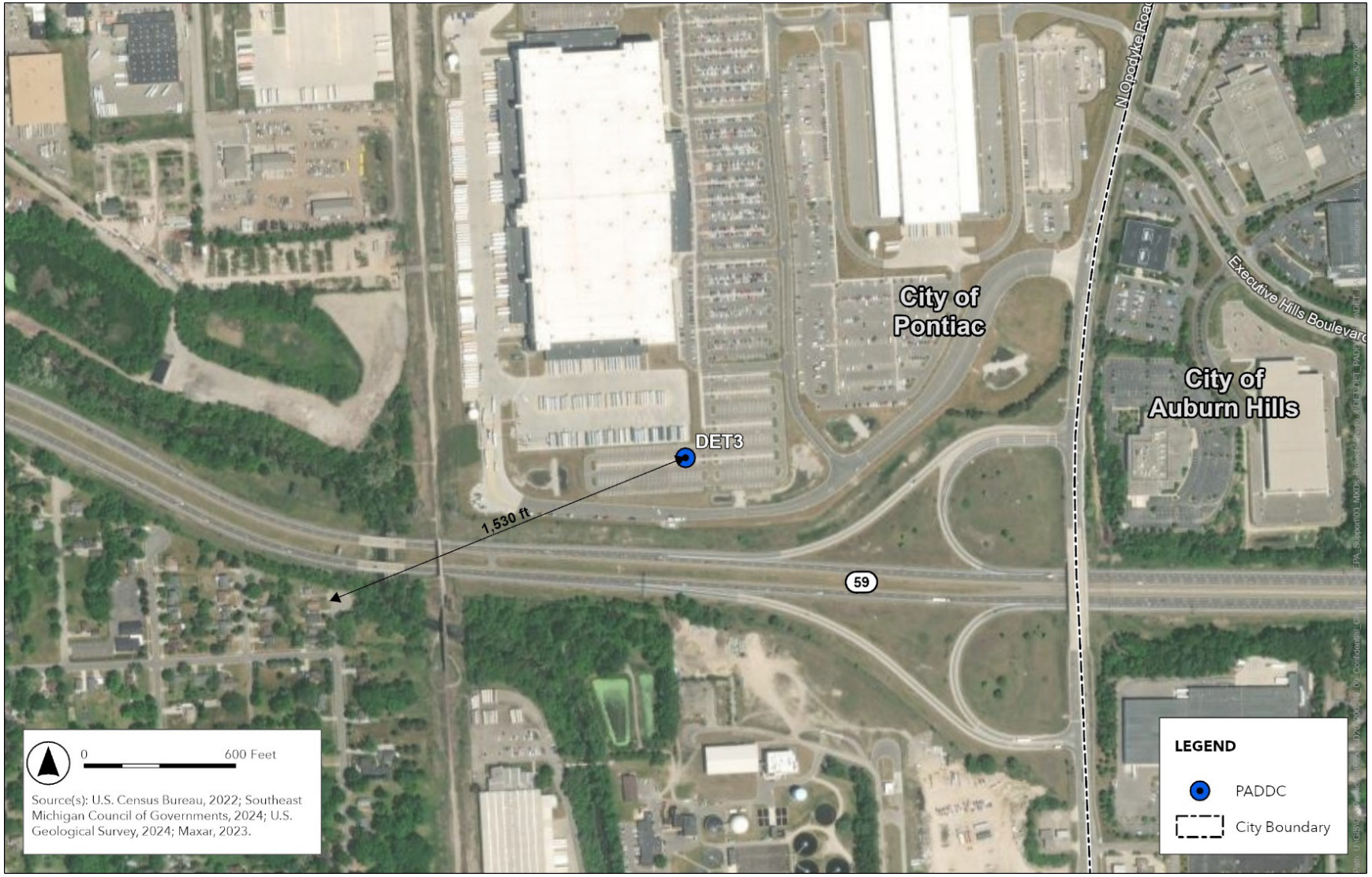


SOURCE: ESA, 2024; Maxar, 2022; US Census Bureau, 2021; US Geological Survey, 2022.

Figure 1-2
Close-Up View of the SMI1 PADDC

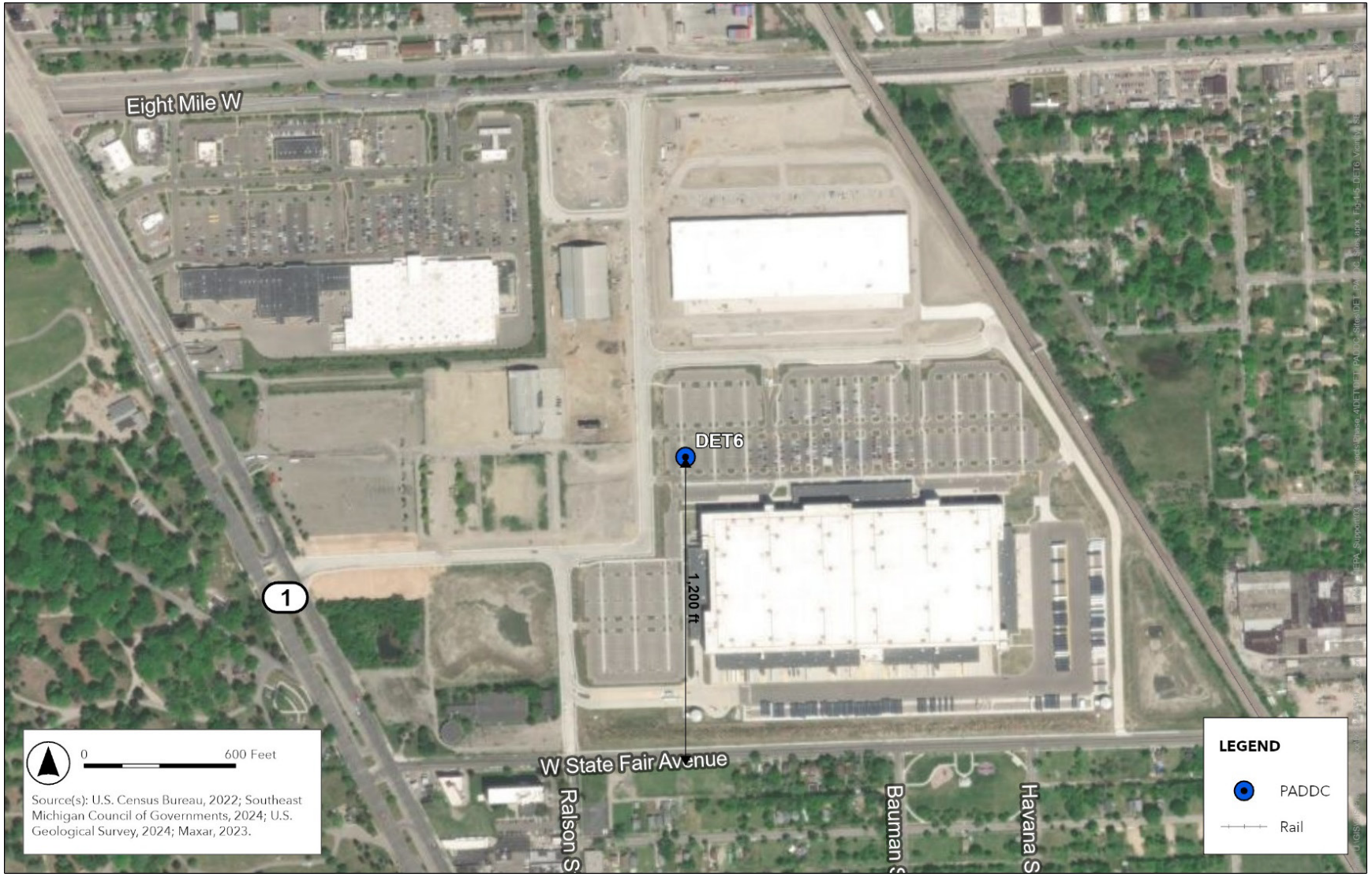
SOURCE: ESA, 2024; Maxar, 2022; US Census Bureau, 2021; US Geological Survey, 2022.

Figure 1-3
Close-Up View of the STW1 PADDC



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

Figure 1-4
Close-Up View of the DET3 PADDC



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

Figure 1-5
Close-Up View of the DET6 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.[10]

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."[11] 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."[12] 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.[13]

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.[14] 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."[15] 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."[16] 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 Detroit, MI, which, in its business judgment, Prime Air has determined is an appropriate market for expanded commercial delivery operations. The requested OpSpecs amendments are **needed** so that Prime Air can begin MK30 drone delivery operations from its four proposed PADDC locations. The approval will offer Prime Air an opportunity to further assess the viability of commercial drone delivery options under real world conditions and demonstrate its ability to operate safely while meeting its compliance obligations. Furthermore, it could assist Prime Air in gauging the public demand for commercial drone delivery services and provide an opportunity to assess community response to commercial delivery operations in this area.

10 49 U.S.C. § 40104.

11 49 U.S.C. § 44705.

12 Id.

13 14 CFR § 119.5 (g), (l).

14 14 CFR § 119.5(j).

15 14 CFR § 119.49(a)(6).

16 14 CFR § 119.51(a); see also 49 U.S.C. § 44709.

1.5 Public Involvement

The FAA provided a Notice of Availability (NOA) of the Draft EA on January 19, 2026, to local interest groups, local government officials, public park authorities, and the State Historic Preservation Office (SHPO), 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.

English- and Spanish-language copies of the NOA can be found in **Appendix A**. The NOA provides information about the Proposed Action and requested review and comments on the Draft EA, which will be available on the FAA website for a 30-day comment period (January 19, 2026, to February 17, 2026). Interested parties are 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 will be included in **Appendix F**.

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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 Draft 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 four proposed PADDCs in the Detroit 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 (Detroit, MI). 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 OpSpec 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 Draft EA. The B050 OpSpec will restrict Prime Air to these four 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, up to 7 days per week, from each of the four 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 expected to be distributed evenly across each operating area. The MK30 drone's 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 SMI1, STW1, DET3, and DET6 PADDCs, which also serve as the Study Areas for the Draft EA, are depicted in **Figures 2-1**, **2-2**, **2-3**, and **2-4**, respectively. All four Study Areas are consolidated on a single map, as depicted in **Figure 2-5**.

2.2.2 Drone Specifications

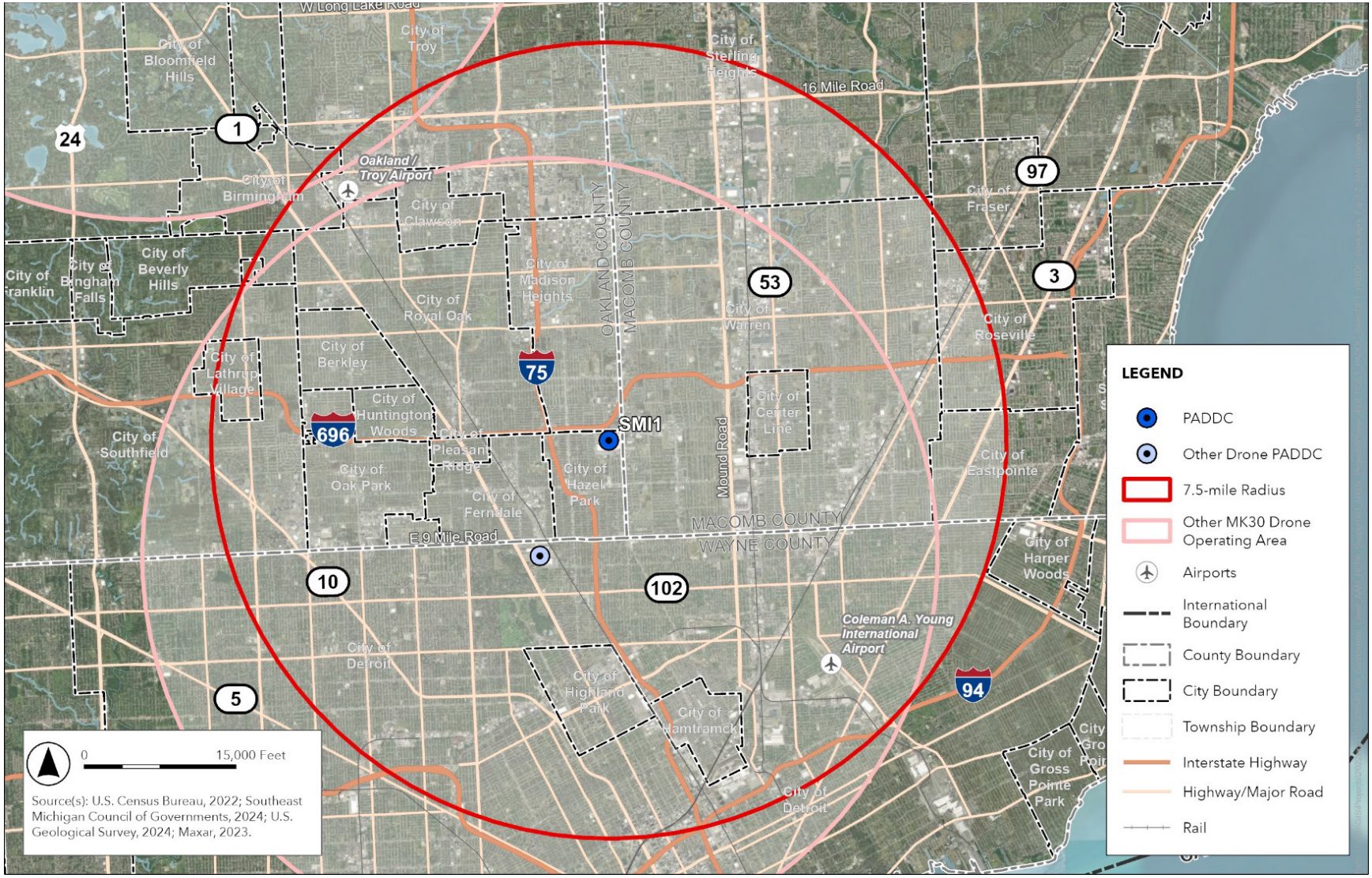
As shown in **Figure 2-6**, the MK30 drone is an electric powered drone that has a vertical take-off and landing, and transitions to wing-borne flight using wing lift during *en route* flight. The MK30 drone systems include hardware and software designed for safety and efficiency. The airframe is composed of staggered wings; the propulsion system includes a rechargeable lithium-ion battery and six (6) motors 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 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 2-7**, 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.[17] 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.[18] After the package is dropped, the MK30 drone climbs vertically and follows its predefined route back to the PADDC at its assigned altitude.

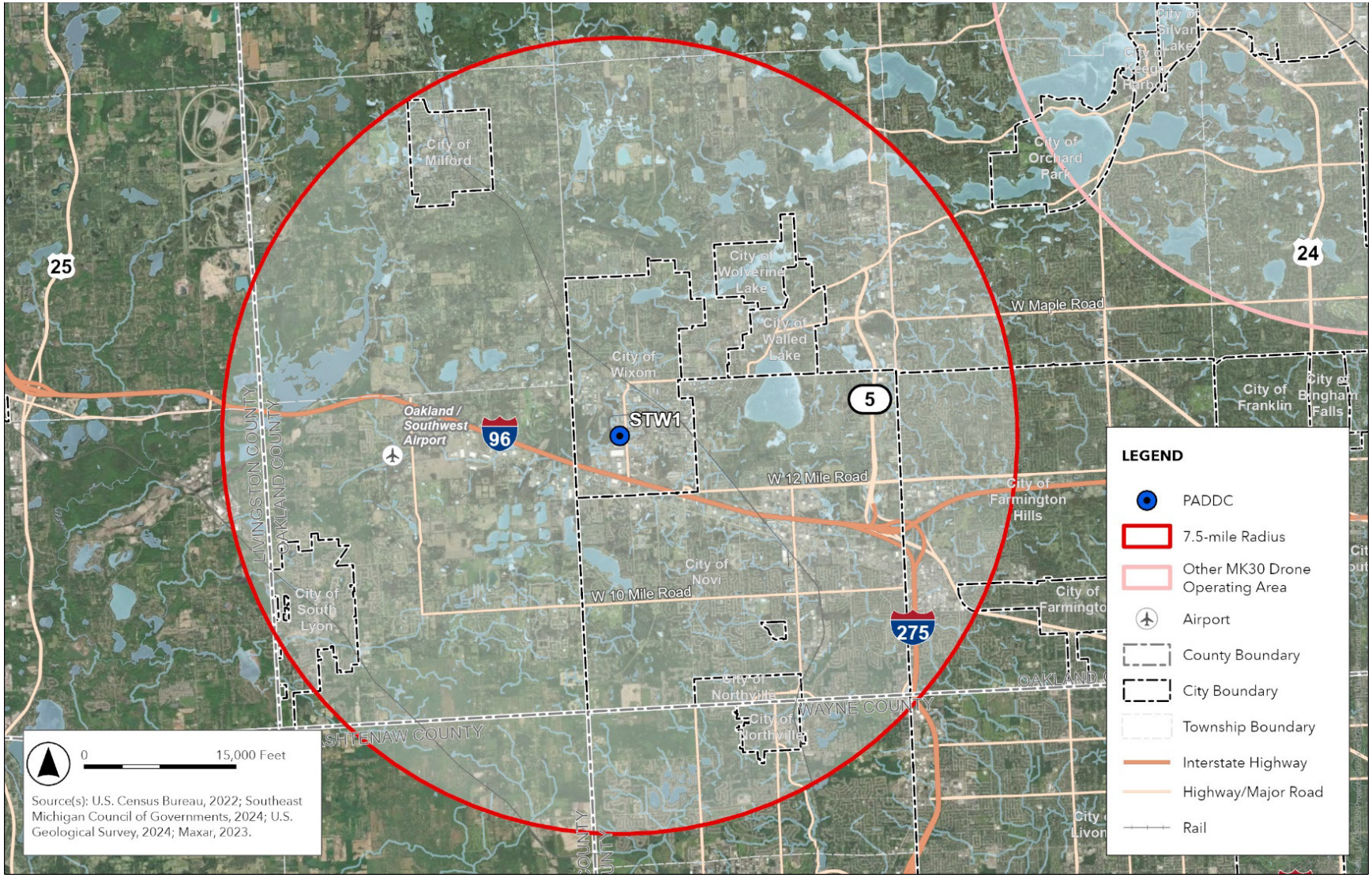
[17] Prime Air may modify operations, if warranted, to avoid or minimize any negative impacts.

[18] 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.



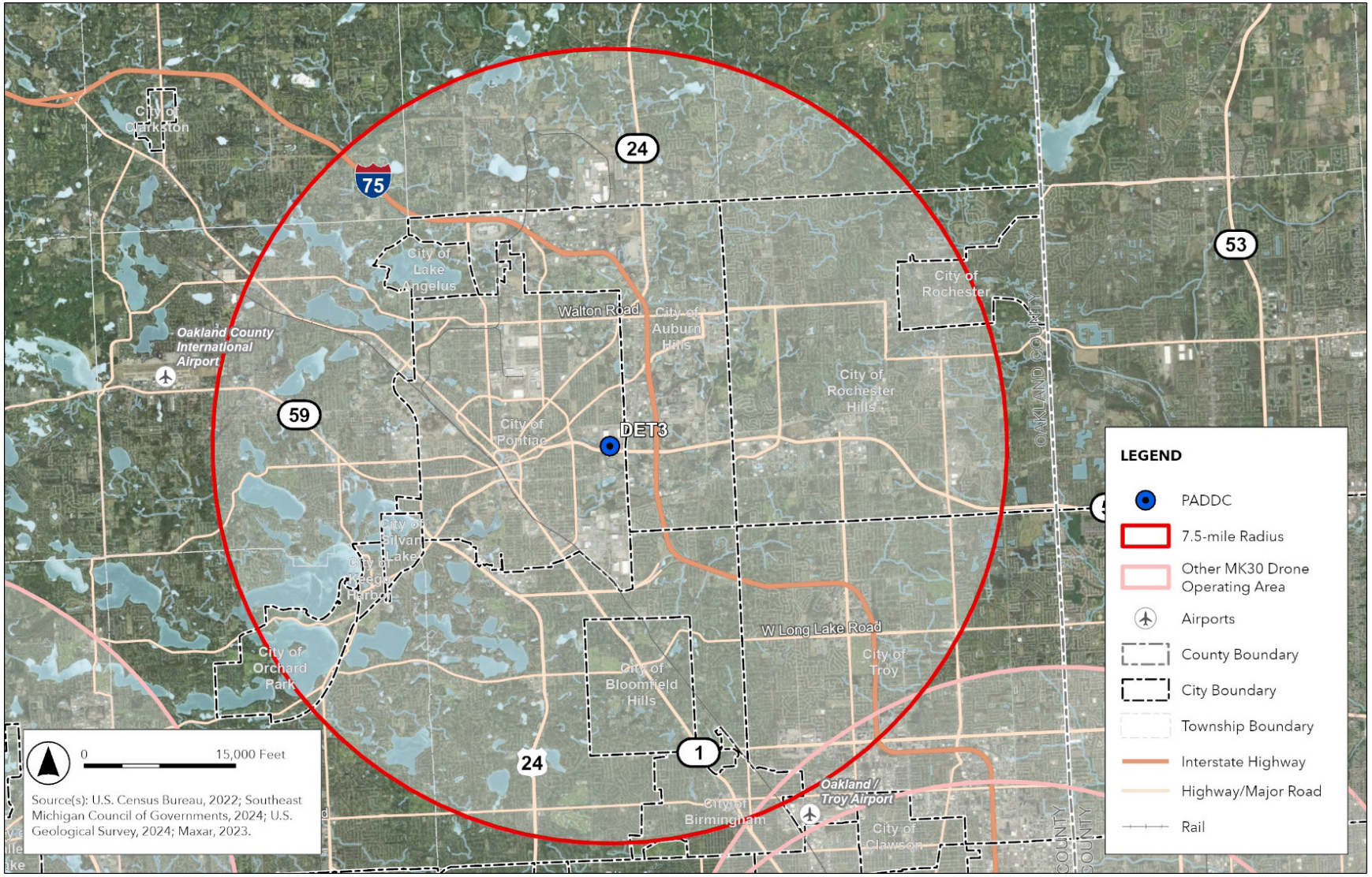
SOURCE: ESA, 2024; Maxar, 2022; US Census Bureau, 2021; US Geological Survey, 2022.

Figure 2-1
SMI1 PADDC Drone Operation Study Area



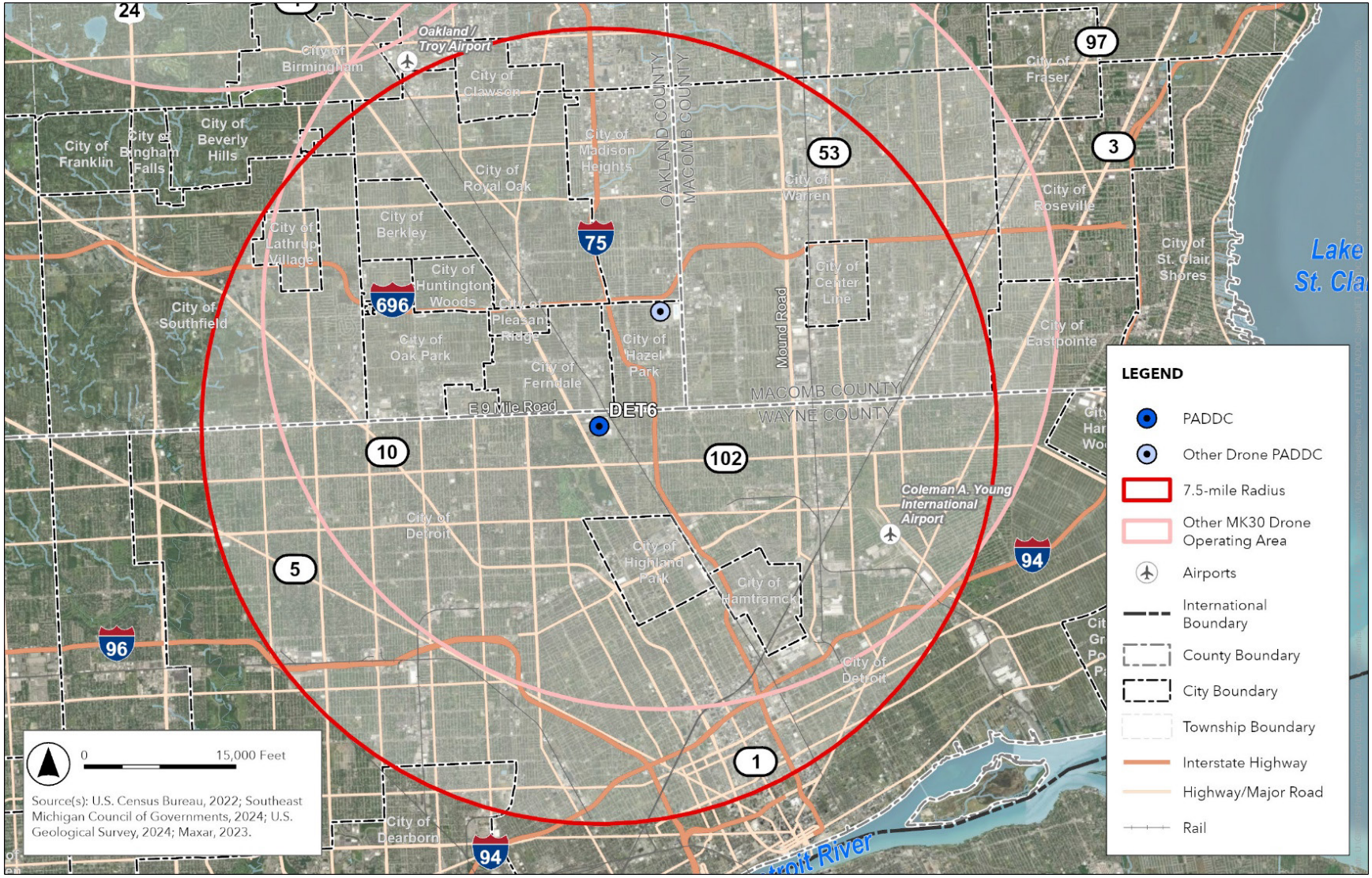
SOURCE: ESA, 2024; Maxar, 2022; US Census Bureau, 2021; US Geological Survey, 2022.

Figure 2-2
STW1 PADDC Drone Operation Study Area



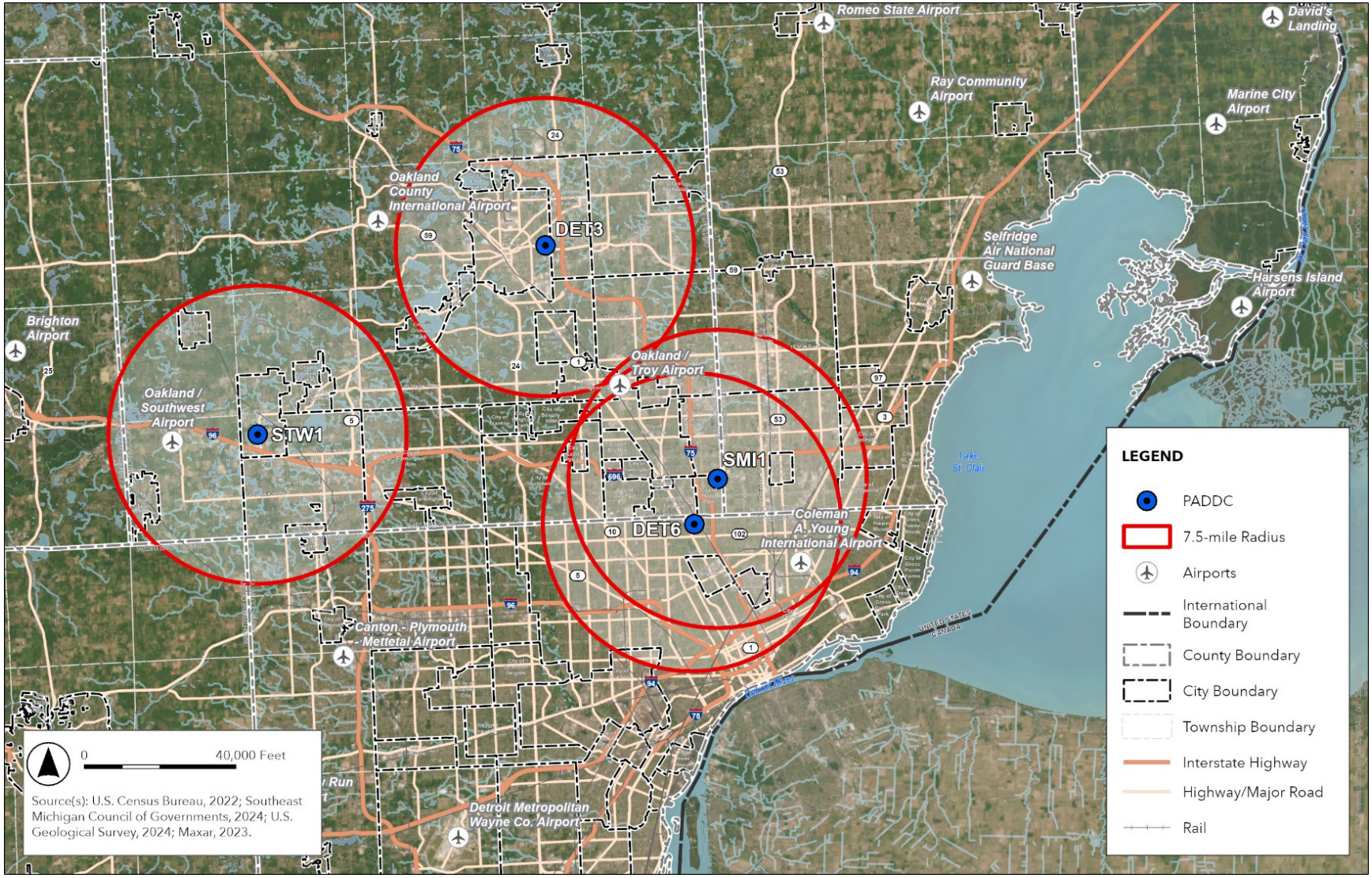
SOURCE: ESA, 2024; Maxar, 2022; US Census Bureau, 2021; US Geological Survey, 2022.

Figure 2-3
DET3 PADDC Drone Operation Study Area



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

Figure 2-4
DET6 PADDC Drone Operation Study Area

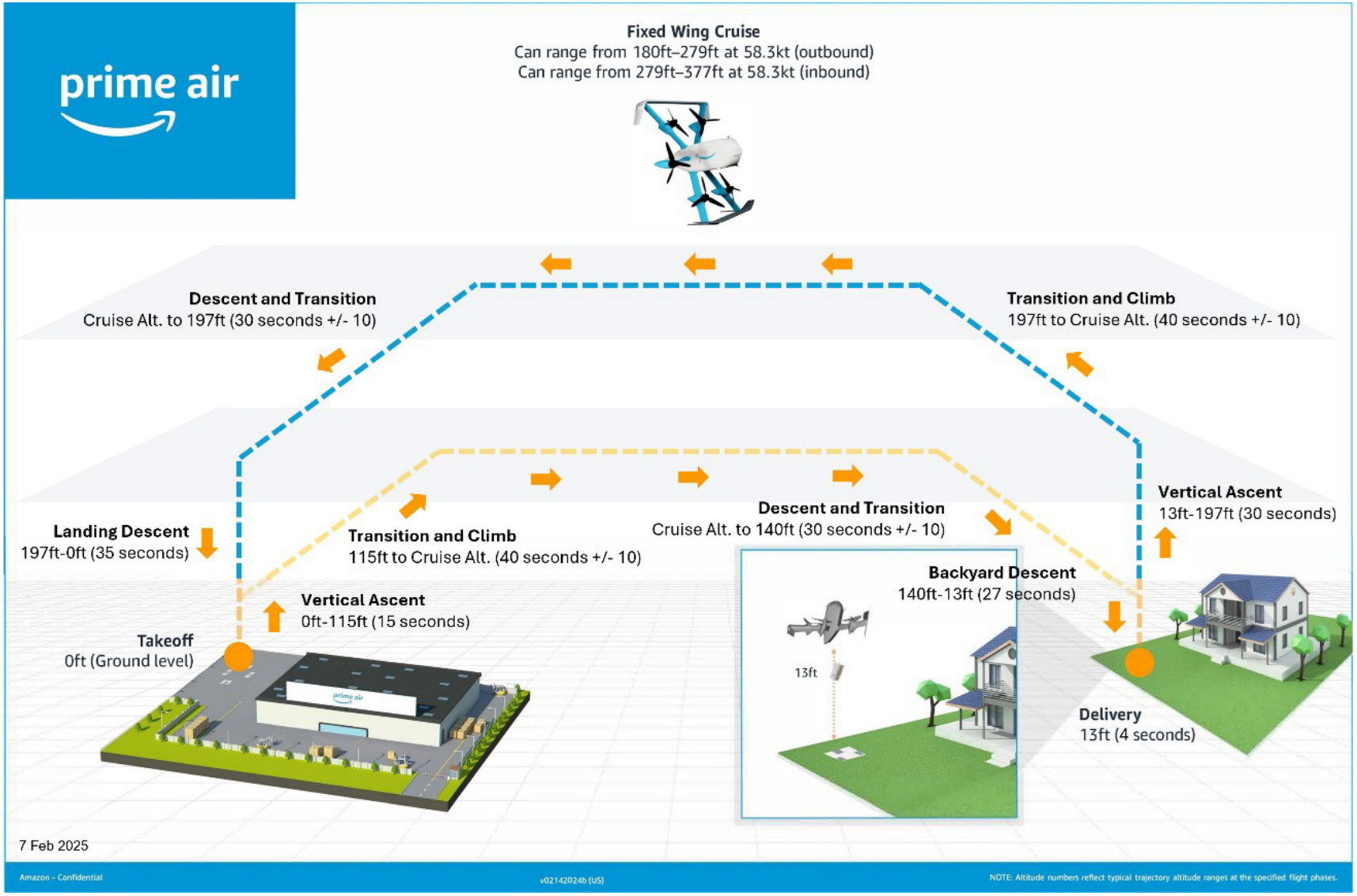


SOURCE: ESA, 2024; Maxar, 2022; US Census Bureau, 2021; US Geological Survey, 2022.

Figure 2-5
MK30 Drone Study Areas – All PADDCs

SOURCE: Amazon Prime Air, 2023.

Figure 2-6
MK30 Drone



SOURCE: Amazon Prime Air, 2024.

Figure 2-7
MK30 Drone Flight Profile

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CHAPTER 3
Affected Environment and Environmental Consequences

3.1 Introduction

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, 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 4(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 environmental health and safety risks
- Visual effects (including light emissions)
- Water resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)

The action area evaluated for potential impacts is defined as Prime Air's proposed operating areas shown in **Figures 2-1** through **2-4**. 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).

- **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 four proposed drone operating areas are located over a five-county area (Wayne, Livingston, Macomb, Washtenaw, and Oakland) in the vicinity of Detroit, MI, which are designated as maintenance for ozone and $PM_{2.5}$ and nonattainment for SO_2 (Wayne County) 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.
- **Biological Resources (Fish and Plants)**: The Proposed Action would not result in impacts to 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 change 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 action area is approximately one mile from the nearest shoreline. The Michigan Coastal Zone was reviewed from the Michigan Coastal Management Program on December 12, 2024 (EGLE 2024).
- **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 Environmental 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. The drones are not equipped with concentrated-beam type "landing lights".[19]
- **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.[20] The Proposed Action would not result in any changes to existing discharges to water bodies, create new discharge that would result in impacts to surface waters, or modify any 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 nearby. The Proposed Action would not affect any river segments in the Nationwide Rivers Inventory (NRI), as the nearest NRI river segment is the Pere Marquette River, approximately 190 mi from the operating area boundary.

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 habitats. 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

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

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

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 the proposed action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species or would be likely to result in the destruction or adverse modification of federally designated critical habitat. An action need not pose 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.[21] 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.[22]

[21] National Bald Eagle Management Guidelines, US Fish and Wildlife Service, May 2007.

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

3.3.2 Affected Environment

This section describes the existing biological environment of the operating area. The operating areas are in the Maumee Lake Plain, Clayey High Lime Till Plains, and the Interlobate Dead Ice Moraines US EPA Level IV ecoregions.[23] The Proposed Action within these ecoregions would take place largely over high to medium density developed urban and commercial areas, with some rural areas and open land. 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 fauna in the region, including beavers, muskrats, cottontail rabbits, skunks, possums, groundhogs, foxes, and coyotes.

The Maumee Lake Plain ecoregion extends along the western shores of Lake Erie. This ecoregion region contains most of the Detroit metro area including SMI1and DET6 PADDCs. Historically, natural forest cover within the ecoregion contained elm-ash swamp forests and with beech and mixed oak forest cover in well drained areas. The Maumee Lake Plain ecoregion has been severely altered with urbanization including residential and industrial development. Outside of the urban areas, the ecoregion is altered by draining and agriculture. Currently there are no natural areas within the operating areas in the ecoregion.[24] The Proposed Action within this ecoregion would take place over high to medium density developed urban and commercial areas.

The Interlobate Dead Ice Moraines ecoregion occurs in southern Michigan. Dead Ice Moraines refers to areas with sediment (glacial till) from glaciers that melted in place. Interlobate refers to contact between ice lobes where large amounts of glacial debris are deposited. As the ice melted, depressions in the landscape formed kettle lakes in the region. This ecoregion consists of more rugged terrain than the lake plain region, with coarse textured, well drained soils.[25] Historically, this area supported open oak savanna, oak-hickory forests, and prairie. Much of this area has been developed or converted to agriculture. This ecoregion is located on the west side of the operating area, in the area of the STW1 PADDC and portions of the DET3 PADCC. The Proposed Action within this ecoregion would take place largely over medium density developed urban and commercial areas with some rural residential and wooded land to the north and west of the PADCCs.

The Clayey High Lime Till Plains ecoregion is located between the Loamy, High Lime Till Plains and the Maumee Lake Plains ecoregions along Lake Erie. This area is relatively level and overlain by glacial till. Historically, this area was covered by beech and beech-maple forests.[26] However, the area has now been largely cleared for agriculture as well as residential and commercial development. The Proposed Action within this ecoregion would take place over medium density suburban and commercial areas with some waterways, rural residential development, and wooded land to the south of the PADCC.

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23 USEPA, Ecoregion Download Files by State - Region 5. Available at: https://www.epa.gov/eco-research/ecoregion-download-files-state-region-5, accessed November 2024.

24 Bplant.org. Maumee Lake Plain. Available at: https://bplant.org/region/762, accessed November 2024.

25 iNaturalist, Interlobate Dead Ice Moraines. Available at: https://inaturalist.ca/projects/interlobate-dead-ice-moraines, accessed November 2024.

26 Bplant.org, Clayey High Lime Till Plains. Available at: https://bplant.org/region/749, accessed November 2024.

3.3.2.1 Federally Listed Species

The potential for impacts to federally listed species was assessed using the USFWS Information for Planning and Consultation (IPaC) map tool and resource. The action areas covered the entire operating areas, as outlined in red in **Figure 2-5**. The USFWS official species list, as well as the Michigan D-Key, was obtained through IPaC, and is included with this EA (accessed November 2024, see **Appendix B**).

Based on the official species list, there are eight federally listed endangered and threatened species, one candidate species, and two proposed listed species with potential to occur in the action area. In addition, the Whooping Crane (*Grus americana*) may occur within the action area. The Whooping Crane is listed as "Experimental Population, Non-Essential". **Table 3-1** lists the species that could be present in the action area based on the IPaC report. There is no critical habitat identified that overlaps the action area. However, proposed critical habitat for the salamander mussel (*Simpsonaias ambigua*) is located within the action area.

TABLE 3-1
IPAC RESULTS

Species	Common Name	Species Name	Federal Status	Critical Habitat
Mammals	Tricolored bat	*Perimyotis subflavus*	Proposed Endangered	N
	Northern long-eared bat	*Myotis septentrionalis*	Endangered	N
	Indiana bat	*Myotis sodalis*	Endangered	N
Reptiles	Eastern massasauga	*Sistrurus catenatus*	Threatened	N
Birds	Rufa Red Knot	*Calidris canutus rufa*	Threatened	N
	Whooping Crane	*Grus americana*	Experimental population, non-essential	N
Clams	Rayed bean	*Villosa fabalis*	Endangered	N
	Salamander mussel	*Simpsonaias ambigua*	Proposed Endangered	Proposed
	Snuffbox mussel	*Epioblasma triquetra*	Endangered	N
Insects	Monarch butterfly	*Danaus plexippus*	Candidate Species	N
	Mitchell's Satyr Butterfly	*Neonympha mitchellii mitchellii*	Endangered	N
Plants	Eastern prairie fringed orchid	*Platanthera leucophaea*	Threatened	N

SOURCE: USFWS IPaC, accessed November 2024.

Based on the IPaC report, there are two bird species that may occur within the area: the Whooping Crane, and the Rufa Red Knot (*Calidris canutus rufa*), a threatened species. As noted in the official species list, the Rufa Red Knot only needs to be considered if the action area occurs along coastal areas during the Red Knot migratory window (May 1–September 30). The action is not proposed to occur along coastal areas utilized by the Red Knot, (see **Appendix B**), therefore, potential impact assessment of the Red Knot is not carried forward in this document, Additionally, there are three mammals: (Indiana bat (*Myotis sodalis*)) – endangered, (Northern long-eared bat (*Myotis septentrionalis*)) – endangered, and (tricolored bat (*Perimyotis subflavus*)) – proposed endangered; one reptile (Eastern massasauga (*Sistrurus catenatus*)) – threatened; three clam species: (rayed bean (*Villosa fabalis*)) – endangered, (salamander

mussel (*Simpsonaias ambigua*)) – proposed endangered, and (snuffbox mussel (*Epioblasma triquetra*)) – endangered, one insect (Mitchell's Satyr Butterfly (*Neonympha mitchellii mitchellii*)) – endangered, and one flowering plant species (eastern prairie fringed orchid (*Platanthera leucophaea*)) – threatened, identified in the official species list (see **Appendix B**). The IPaC list also included one candidate species, the monarch butterfly *(Danaus plexippus*), that has the potential to occur in the action area.

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

IPaC identified three different species of bats as having the potential to occur within the action areas. These three bats are further described below.

According to IPaC the tricolored bat has the potential to occur within the action area. However, the Michigan Natural Features Inventory lists no known occurrences of this species within the action area. The tricolored bat is primarily found in the western upper peninsula and extreme southwest corner of the state. This small, yellowish-brown bat typically hibernates in caves or mines. During the spring and summer months, tricolored bats can be found in live and/or dead deciduous hardwood forests. Tricolored bats are known to have one emergence in the early evening (dusk) and one emergence later in the evening where foraging occurs along the forested edges and over pond or other waterbodies.[27] Tricolored bats are not usually found in open fields, deep forests, or buildings.[28]

The northern long-eared bat (*Myotis septentrionalis*) is identified by IPaC as potentially occurring within the area. The Michigan Natural Features Inventory lists the species as observed in Washtenaw, and Livingston Counties.[29] This species is found in areas dominated by deciduous or mixed hardwood-coniferous forests. The northern long-eared bat hibernates in karst areas of Michigan in small caves and crevices. In the spring and summer, they will roost in trees. They are rarely found in buildings or other manmade structures.

Lastly, the Indiana bat (*Myotis sodalis*) is identified as potentially occurring within the area. The Michigan Natural Features Inventory lists the species as observed in Wayne, Washtenaw, and Livingston Counties. Indiana bats typically hibernate in caves in Kentucky, Indiana, and Missouri. In the summer, they may migrate to the action area to roost in cavities of mature trees in floodplain forests.

The Eastern massasauga rattlesnake (*Sistrurus catenatus*) was identified as potentially occurring in the area. This is Michigan's only venomous snake. It occurs primarily within wetland habitats but may also be found in adjacent upland areas. They prefer areas with a mix of shade and sun.[30]

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27 U.S. Fish & Wildlife Service, Tricolored Bat (*Perimyotis subflavus*), https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus, accessed January 2024.

28 Michigan Natural Features Inventory, https://mnfi.anr.msu.edu/species/description/11429/Perimyotis-subflavus, accessed November 2024.

29 Michigan Natural Features Inventory https://mnfi.anr.msu.edu/species/description/11427/Myotis-septentrionalis, accessed November 2024.

30 Michigan Natural Features Inventory https://mnfi.anr.msu.edu/species/eastern-massasauga-rattlesnake, accessed November 2024.

The three clam species listed, rayed bean (*Villosa fabalis*), snuffbox mussel (*Epioblasma triquetra*), and salamander mussel (*Simpsonaias ambigua*) are freshwater mussel species. The rayed bean and snuffbox mussel are small freshwater mussels listed as endangered under the Endangered Species Act. Rayed bean mussels prefer sand or gravel substrates in small streams and lakes. Snuffbox mussels inhabit sand, gravel or cobble substrates in small and medium-sized streams. The salamander mussel is a small thin-shelled mussel that is found in swift-flowing streams and rivers. This species is currently proposed for listing as endangered.

IPaC listed one threatened plant species, the eastern prairie fringed orchid (*Platanthera leucophaea*). The eastern prairie fringed orchid prefers wet prairies and meadows. It is rare throughout its range from Wisconsin south to Oklahoma.[31] The eastern fringe orchid has been documented in Wayne, Washtenaw, Livingston, and Oakland Counties.[32]

The Mitchell's Satyr Butterfly is a federally listed endangered species of butterfly found only in Michigan and Indiana. Adult butterflies occur in Michigan between the 3rd week of June to the 3rd week of July.[33] The Mitchell's Satyr Butterfly requires prairie fens which are low nutrient grassy wetlands with peat soils and a diversity of wildflowers.[34]

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 is a candidate species for federal listing. The preferred habitat for monarchs is open meadows, fields, and wetland edges with the presence of milkweed and flowering plants. Monarchs from Ontario join local populations in Michigan in their migration south in the fall, returning in the spring. Migration through Michigan is largely along the shoreline and islands of Lake Michigan.

3.3.2.2 State Species of Concern

The State of Michigan Department of Natural Resources maintains a list of fish, plants and wildlife species that are protected under Part 365, Endangered Species Protection, of the Natural Resources and Environmental Protection Act, Act 451 of 1994. The Michigan Natural Features Inventory database of Rare Species of Michigan lists documented occurrences of 158 State-listed threatened or endangered species of amphibians, birds, fish, insects, mammals, mollusks, plants, and reptiles in Wayne, Livingston, Macomb, Washtenaw, and Oakland Counties. The Michigan Natural Inventory list of species occurring within the subject counties is provided in **Appendix B**.

[31] US Forest Service, https://www.fs.usda.gov/wildflowers/plant-of-the-week/platanthera_leucophaea, accessed November 2024.

[32] Michigan Natural Features Inventory https://mnfi.anr.msu.edu/species/description/15534/Platanthera-leucophaea, accessed November 2024.

[33] Michigan Department of Natural Resources https://www.michigan.gov/dnr/education/michigan-species/insects/satyr, accessed December 2024.

[34] USFWS, https://www.fws.gov/species/mitchells-satyr-butterfly-neonympha-mitchellii-mitchellii, accessed December 2024.

3.3.2.3 Migratory Birds

Migratory bird species found within the operating area will vary throughout the year. 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. In Michigan, Bald Eagles nest mainly in the Upper Peninsula and the northern part of the Lower Peninsula. They migrate south to avoid snow and ice and can be seen throughout the state during the winter. Bald Eagles could nest in areas near bodies of water such as Lake Erie and the Detroit River. Based on information received from the Michigan State University Extension, there are no documented Bald Eagle nests located within three miles of the PADCCs. However, based on the USFWSR3 Michigan Data for Insecticide Applicators, there is one potential Bald Eagle nest identified within the flight area for PADDC DET3 and two potential Bald Eagle nests located within the flight area for PADDC STW1.[35] Potential nest locations can be found as **Figure B-1**. Additional information requests for eagle nests and other raptors within the full action area are available through the Michigan Natural Features Inventory website.[36] Based on the National Bald Eagle Management Guidelines, to reduce an incursion incident, aircraft should stay at least 1,000 ft from Bald Eagle nests during the breeding season unless the aircraft is operated by a trained wildlife biologist.

In addition to Bald Eagles; the Western Grebe, Black-Billed Cuckoo, Eastern Whip-poor-will, Chimney Swift, King Rail, Yellow Rail, Upland Sandpiper, Marbled Godwit, Black Tern, Long-eared Owl, Red-Headed Woodpecker, Wood Thrush, Grasshopper Sparrow, Leconte's Sparrow, Hanslow's Sparrow, Bobolink, Golden-winged Warbler, Kirtland's Warbler, Cerulean Warbler, and Canada Warbler are also migratory birds which could occur within the area that are identified as Birds of Conservation Concern (BCC). Of these, the most likely species to occur according to the IPaC report are the Black-billed Cuckoo, Bobolink, Canada Warbler, Chimney Swift, and the Wood Thrush. These species are further discussed under **Section 3.3.3.3**, below.

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 predators enter the airspace of a breeding habitat bird or territorial male.[37] Certain species of

[35] USFWS, https://www.arcgis.com/apps/mapviewer/index.html?webmap=7710087551c34de28b76b872a610ed70, accessed December 2024.

[36] Rebecca Rogers, MS, GISP; MSU Extension. Personal communication. December 3, 2024.

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

birds are known to harass, mob, and attack aerial predators that fly into or near their territory, especially 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.[38] 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 place other than the PADDC (except during emergency landings) since it remains airborne while conducting deliveries. All phases of operation 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 under 400 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 decibels, whereas a leaf blower at 50 ft is approximately 73 to 77 decibels).[39] At a potential maximum of 1,000 flights per day across the entire action area of each PADDC (or 4,000 total per day), the distribution and altitude of the flights are not expected to significantly affect wildlife in the action area.

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[38] 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. Available: https://doi.org/10.1002/ece3.5467.

[39] 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, Available https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6707732/, Table 2.

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

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. Amazon Prime Air will use system reported data to locate and report an off-nominal drone and will 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 to 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 Detroit 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 at 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 Michigan Department of Natural Resources 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 Eastern massasauga, or the Eastern prairie fringed orchid identified within the USFWS IPaC official species list. However, since a drone could unintentionally land in sensitive areas in an emergency landing contingency, additional Conservation Measures (CM) are considered for these species. These CMs include:

1. Eastern Massasauga
   - Permanent loss of massasauga habitat is not anticipated,
   - Recovery personnel should recognize appropriate massasauga habitat – The Massasauga survives in a variety of habitats including open-canopy forested regions for hibernation season, and wetlands such as shore marshlands, shrubby swamps, and fens in their active season,[40]
   - Recovery personnel should be familiar with the species and should be able to identify – watch MDNR's "60-Second Snakes: The Eastern Massasauga Rattlesnake" video (available at *https://www.youtube.com/watch?v=-PFnXe_e02w*).
   - Recovery personnel should report sightings of any federally listed species, including the Eastern massasauga, to the Service within 24 hours.
2. Eastern Prairie Fringed Orchid
   - Alterations (including indirect or direct impacts) of the Eastern prairie fringed orchid habitat is not anticipated,
   - Recovery personnel should recognize appropriate Eastern prairie fringed orchid habitat (found in a wide variety of habitats, including wet to mesic prairie, to wetland communities such as sedge meadow, fen marsh and marsh edges) and should be able to identify,
   - Recovery personnel should report sightings of any federally listed plant species, including the Eastern prairie Fringed Orchid.

Additionally, the FAA concurs with the Michigan D-Key, that the proposed Action will have *no effect* on proposed critical habitat for the salamander mussel or other listed mussel species such as the Rayed bean, as the project is not anticipated to impact habitat or create / cause water quality issues. The federally endangered Whooping Crane was identified in the official species list as possibly occurring in the area, although it nests west of the study area in Wisconsin so there is no threat of disturbing that critical part of their lifecycle. The Whooping Crane within this area is considered experimental and non-essential, as the Whooping Crane's Eastern Migration Population occurs approximately 230 mi west of Detroit, along the western and southern edge of Lake Michigan.[41] While it is possible that Whooping Cranes could utilize open land such as agricultural fields or unimproved pastures located within some of the operating areas as stopover habitat on their way to wintering grounds in the southeast, whooping crane observations have been recorded transitioning through the study action area. Based on (1) operations occurring mostly in an urban environment, (2) the altitude at which the drone flies in the en route phase (180–377 ft AGL); (3) the expected low sound levels experienced by a whooping crane, (4) any increase in ambient sound levels would be short in duration, (5) the low probability of a whooping crane occurring in the action area, and (6) the low

[40] Weatherhead, P. J. & Prior, K. A. (1992). Preliminary observations of habitat use and movements of the eastern massasauga rattlesnake (Sistrurus c. catenatus). *Journal of Herpetology*, 26(4):447–452.

[41] International Crane Foundation https://savingcranes.org/species/whooping-crane/, accessed December 2024.

likelihood of the drone striking a Whooping Crane, the FAA has determined that the action may affect, but is not likely to adversely affect, the Whooping Crane. Any effects would be discountable (extremely unlikely to occur) or insignificant (not able to be meaningfully measured, detected, or evaluated).

Mitchell's Satyr Butterfly, a federally endangered species, is known to occur in wetland fen habitats in Washtenaw County and has been observed in Wayne County.[42] However, there are no suitable fen habitats within the study area.[43] They typically fly low over vegetation and would not be expected to be encountered during drone flights. It is not anticipated that the proposed Action would affect the life cycle of the Mitchell's satyr butterfly, therefore, *no effect* will occur to this species as a result of the proposed Action.

The monarch butterfly, a candidate for federal 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 are not commonly observed at higher AGL altitudes (generally between 1 and 300 ft) and would not be expected to frequently occur at the altitudes where Prime Air is proposing to operate.[44] Therefore, it is anticipated that the Action will have *no effect* on the monarch butterfly.

Federally listed bat species including the Northern long-eared bat, the Indiana bat, and the tricolored bat may be located within the action area. The Proposed Action would include drone operations up until 10:30 p.m., which is anticipated to overlap with the dusk emergence of bat activity; however, drone operations will not affect the dawn civil twilight hours. Although operations may occur during dusk emergence, the listed bat species typically forage in areas near water or along forested edges.[45,46] Research suggests that drones have "*minimal impact on bat behavior*"[47] and that bats do not appear to be disturbed by drones.[48] Also, the risk of bat conflicts is only present for 3 to 6 months each year (when bats are not hibernating). Bats at roost or in flight could experience drone noise during the en route and delivery flight phases. Bats foraging at or near the tree line at the time a drone flies by 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 bats. Any increase in ambient sound levels caused by the drone's

42 Michigan Natural Features Inventory https://mnfi.anr.msu.edu/species/description/11743/Neonympha-mitchellii-mitchellii, accessed December 2024.

43 USFWS Mitchell's Satyr Habitat Conservation Plan, available: https://ecos.fws.gov/ecp/report/conservation-plan?plan_id=4031, accessed December 2024.

44 Altitudes attained by migrating monarch butterflies, Danaus p. plexippus (*Lepidoptera: Danaidae*), as reported by glider pilots. Available: https://cdnsciencepub.com/doi/abs/10.1139/z81-084. Accessed April 2022 and February 2024.

45 US Fish & Wildlife Service, Tricolored Bat. Available: https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus, accessed February 2024.

46 Michigan Department of Natural Resources. Available: https://www.michigan.gov/dnr/education/michigan-species/mammals/bats, accessed December 2024.

47 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. Available: https://doi.org/10.1111/2041-210x.12992.

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

flight would only last a few seconds during the en route phase and approximately 61 seconds during delivery. Given the bat's ability to avoid flying into objects, the brief amount of time the drone would be in a single location, and the low probability of encountering a bat during operations, the likelihood of a drone striking a bat is extremely 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 listed bat species occurring in the action area, and (6) the low likelihood of the drone striking a bat, the FAA has determined that the Action will have *no effect* on the tricolored bat, Indiana bat, and northern long-eared bat.

Appendix B identifies the federal and state-listed threatened and endangered species that could occur in Wayne, Livingston, Macomb, Washtenaw, and Oakland Counties.[49] Given the habitat type and distribution required by state-listed species that may occur in the action area, and due to the lack of suitable habitat, 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	*No Effect*
Northern long-eared bat	*Myotis septentrionalis*	Endangered	*No Effect*
Indiana bat	*Myotis sodalis*	Endangered	*No Effect*
Eastern massasauga	*Sistrurus catenatus*	Threatened	*No Effect*
Rufa Red Knot	*Calidris canutus rufa*	Threatened	*No Effect*
Whooping crane	*Grus americana*	Experimental population, non-essential	*Not Likely to Adversely Affect (NLAA)*
Rayed bean	*Villosa fabalis*	Endangered	*No Effect*
Salamander mussel	*Simpsonaias ambigua*	Proposed Endangered	*No Effect*
Snuffbox mussel	*Epioblasma triquetra*	Endangered	*No Effect*
Monarch butterfly	*Danaus plexippus*	Candidate Species	*No Effect*
Mitchell's Satyr Butterfly	*Neonympha mitchellii mitchellii*	Endangered	*No Effect*
Eastern prairie fringed orchid	*Platanthera leucophaea*	Threatened	*No Effect*

SOURCE: FAA, 2024.

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

[49] Michigan Natural Features Inventory. Available: https://mnfi.anr.msu.edu, accessed November 2024.

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 8 ft, and should be easily identified.[50] Bald Eagles are usually seen near lakes, rivers, and marshes while foraging for fish or carrion. If nests are identified, Prime Air will 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 will be maintained until the end of the breeding season (January 15 through August 15).[51]

Of the BCC migratory birds which may occur within the area. The most likely species to occur are described below:

The Chimney Swift (*Chaetura pelagica*) is a BCC with high probability within the operating area. Chimney Swifts often make their nests in manmade vertical surfaces preferring brick chimneys with open caps.[52] 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 to August 25). While it is not expected that infrequent drone overflights would cause adverse effects to nesting or feeding Chimney Swifts, Prime Air would conduct annual desktop reviews of available databases to determine active nesting sites and take avoidance measures if determined to be necessary.

Since the Prime Air drones would only approach the ground to 13 ft AGL in developed areas during delivery, impacts to the below listed BCC birds during nesting are unlikely.

- The Black-billed Cuckoo (*Coccyzus erythropthalmus*) is a late spring to summer visitor to Michigan and breeds in May. The Black-billed Cuckoo breeds in thickets and dense woods often near water.[53]
- The Bobolink (*Dolichonyx oryzivorus*) is a migratory species that may be found breeding within the area from May to June before migrating to South America. Bobolink, who feed largely on grain, are found nesting in grasslands and pasture.
- The Canada Warbler (*Cardellina canadensis*) is a small migratory songbird which breeds mostly in Canada but is also found in the Great Lakes region and northeastern US. In Michigan, this species breeds in April through May in wet to mesic deciduous and mixed forest communities.[54]
- The Wood Thrush (*Hylocichla mustelina*) may be found within the action area during its breeding season from April to early July. The Wood Thrush forages in leaf litter and nests in wooded areas with mixed and deciduous forest cover. Populations of Wood Thrush are in decline in the Great Lakes region due to habitat loss and fragmentation.[55]

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

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

52 Michigan Audubon. Available: https://www.michiganaudubon.org/bfc/chsw/, accessed December 2024.

53 Cornell Labs, All About Birds, Black Billed Cuckoo. Available: https://www.allaboutbirds.org/guide/Black-billed_Cuckoo/id, accessed December 2024.

54 Brewer, R., G.A. McPeek and R.J. Adams, Jr. 1991. The Atlas of Breeding Birds of Michigan. Michigan State University Press, East Lansing, MI.

55 Michigan Department of Natural Resources - Featured Species Habitat Management Guidance for Wood Thrush. Available: https://www.michigandnr.com/publications/pdfs/HuntingWildlifeHabitat/Featured_Species/MDNR_feat_sp, accessed December 2024.

The other BCC species identified in the IPaC official species list breed elsewhere or they are not likely to occur or be nesting 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 to 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 Michigan Ecological Services Field Office on May 8, 2025. On July 10, 2025, the Michigan Ecological Services Field Office issued a written concurrence with the FAA's determination of "*not likely to adversely affect*" for the whooping crane.

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 foreseen 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 activities 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 4(f) Resources

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 produces an effect, such as excessive noise, that would result in substantial impairment to 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 the FAA Order 1050.1 Desk Reference. Additionally, the FAA uses the regulations and guidance provided by the Federal Highway Administration (FHWA) when evaluating potential impacts on Section 4(f) properties.[56,57] While these requirements are not obligatory for the FAA, they may be utilized as guidance to the extent that they are applicable.[58]

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.

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

56 FHWA, July 20, 2012. Section 4(f) Policy Paper. Office of Planning, Environment and Realty Project Development and Environmental Review, Washington, DC. Available at: https://www.environment.fhwa.dot.gov/legislation/section4f/4fpolicy.aspx.

57 23 CFR Part 774, Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and historic Sites (Section 4(f)).

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

716 properties that could meet the definition of a Section 4(f) resource, including public parks administered by city, county, township 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 are likely to 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:

- Avondale School District
- Berkley School District
- Birmingham School District
- Bloomfield Hills Schools
- City of Auburn Hills
- City of Berkley
- City of Birmingham
- City of Center Line
- City of Clawson
- City of Dearborn
- City of Detroit
- City of Farmington Hills
- City of Ferndale
- City of Hamtramck
- City of Hazel Park
- City of Highland Park
- City of Huntington Woods
- City of Keego Harbor
- City of Lake Angelus
- City of Lathrup Village
- City of Madison Heights
- City of Northville
- City of Novi
- City of Oak Park
- City of Pleasant Ridge
- City of Pontiac
- City of Rochester
- City of Rochester Hills
- City of Royal Oak
- City of South Lyon
- City of Southfield
- City of Sterling Heights
- City of Sylvan Lake
- City of Troy
- City of Walled Lake
- City of Warren
- City of Wixom
- City of Wolverine Lake
- Clarkston Community Schools
- Commerce Township
- Detroit Riverfront Conservancy
- Drayton Plains Nature Center
- Eastpointe Community Schools
- Fraser Public Schools
- Huron Clinton Metropark Authority
- Huron Valley Schools
- Lake Orion Community Schools
- Lyon Township
- Michigan Department of Natural Resources
- Multi Lake Conservation Association
- Northville Schools
- Northville Township
- Novi Community School District
- Oak Creek Village
- Oakland County
- Oakland Township
- Orion Township
- Recreation Authority of Roseville and Eastpointe (RARE)
- Rochester Community Schools
- Royal Oak Township
- Salem Township
- South Lyon Community Schools
- Troy School District
- Village of Beverly Hills
- Village of Milford
- Walled Lake Consolidated Schools
- Warren Consolidated School District
- Waterford Township
- Wayne County
- West Bloomfield School District
- West Bloomfield Township

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 19, 2026.

As noted in Table C-2 of **Appendix C**, 81 public recreation areas and facilities in the four drone operating areas were developed using LWCFA 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 Detroit area. Accordingly, the No Action Alternative would not result in impacts on Section 4(f) 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 Detroit 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 produces 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 action area. As further described in **Section 3.8**, the short duration of en route flights would minimize any potential for significant visual impacts. 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 action area. The Proposed Action would not convert property acquired or developed using LWCFA grants for uses other than public outdoor recreation. Therefore, there would be no impacts related to the conversion of LWCFA fund-assisted properties.

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 foreseen effects on Section 4(f) 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 activities 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 Section 4(f) 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 action area. These resources reflect human culture and history in the physical environment, and may include structures, objects, and other important features 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 1050.1 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 of 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

Four 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 198 historic resources listed in the National Register located in the APEs. Additionally, there are 30 National Register-eligible resources, and 169 state-listed resources located in the APEs. The historic and cultural attributes of these sites are unlikely to be affected by drone overflights. Historic resources occurring within the APE are listed in **Tables D-1** through **D-4** of **Appendix D**.

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 commercial drone package delivery operations in the Detroit area. As such, there would be no impact on any historical, architectural, archaeological, or cultural resources.

3.5.3.2 Proposed Project

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.

The FAA initiated consultation with the MI SHPO on April 28, 2025, seeking concurrence with the FAA's definition of the APEs and its finding of *no adverse effects*. Requests for Additional Information were submitted to the FAA on May 28, 2025, and July 17, 2025, and supplementary materials were submitted to the SHPO on June 20, 2025, and December 17, 2025. On January 5, 2026, the MI SHPO issued a written concurrence with the FAA's determination that "the project will have no adverse effect."

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

The FAA also consulted with Tribal Governments, on May 2, 2025 (via email) and May 5, 2025 (via regular mail), that may potentially attach religious or cultural significance to resources in the APEs, which include the following:

- Bay Mills Indian Community
- Grand Traverse Band of Ottawa & Chippewa Indians

- Hannahville Indian Community
- Keweenaw Bay Indian Community of the Lake Superior Band of Chippewa Indians
- Lac Vieux Desert Band of Lake Superior Chippewa Indians
- Little River Band of Ottawa Indians
- Little Traverse Bay Bands of Odawa Indians
- Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians (Gun Lake Tribe)*
- Nottawaseppi Huron Band of the Potawatomi
- Pokagon Band of Potawatomi Indians
- Saginaw Chippewa Indian Tribe of Michigan*
- Sault Ste. Marie Tribe of Chippewa Indians

Tribal organizations that responded to Government-to-Government consultation are denoted with "*" above. The Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians indicated no concerns, and the FAA hosted a virtual information discussion with the THPO for the Saginaw Chippewa Indian Tribe of Michigan on June 4, 2025.

Copies of representative correspondence with potentially interested Tribal Governments and all specific replies 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 foreseen 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 activities 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 to any residential land use or noise sensitive resource 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.

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 the FAA Order 1050.1 Desk Reference, *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 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 average 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 Appendix C of FAA 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 2-5**, the Action areas cover approximately 560 sq mi, and the estimated population is roughly 1,706,000. The population density is approximately 3,000 people per sq mi.[59] There are three airports, one seaplane base, 16 heliports, and three hospitals located in the MK30 drone's proposed areas of operations, as listed in **Table 3-3**.[60]

[59] Environmental Protection Agency's (EPA) Environmental Justice Screening Tool (EJSCREEN). Available: https://www.epa.gov/ejscreen, accessed February 7, 2024.

[60] 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
N/A	Ascension Crittenton Hospital	Hospital	DET3	-
51MI	Cass Lake-Cove Island Seaplane Base	Seaplane Base	DET3	D
1MI2	Guardian Industries Heliport	Heliport	DET3	-
5MI9	Mc Phail Corporation Heliport	Heliport	DET3	-
52MI	Six C's Heliport	Heliport	DET3	-
83MI	Trinity Health - Oakland Campus Heliport	Heliport	DET3	-
N/A	St. John Macomb-Oakland Hospital	Hospital	DET6	-
N/A	Southfield St. John Providence Hospital	Hospital	DET6	-
DET	Coleman A Young Municipal Airport	Airport	DET6, SMI1	D
5MI0	Detroit Medical Center Heliport	Heliport	DET6	-
0MI9	Henry Ford Hospital Heliport	Heliport	DET6, SMI1	-
17MI	Grace Hospital Heliport	Heliport	DET6, SMI1	-
32MI	William Beaumont Hospital Heliport	Heliport	DET6, SMI1	-
5MI6	Tv2 Heliport	Heliport	DET6, SMI1	-
VLL	Oakland/Troy Airport	Airport	SMI1	G
Y47	Oakland/Southwest Airport	Airport	STW1	G
53MI	Huron Valley Sinai Hospital Heliport	Heliport	STW1	-
6MI4	Guardian Industries Heliport	Heliport	STW1	-
7MI0	Kamikaze Run Heliport	Heliport	STW1	-
9MI7	Glen Oaks Heliport	Heliport	STW1	-
63MI	Providence Hospital Heliport	Heliport	STW1	-
3MI3	Zayti Field Heliport	Heliport	STW1	-
MI46	Heliflite Heliport	Heliport	STW1	-

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 Detroit area. As such, no impacts to noise and noise-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).[61] 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 to 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 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 drones transiting to and from the PADDC.

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 Detroit area 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

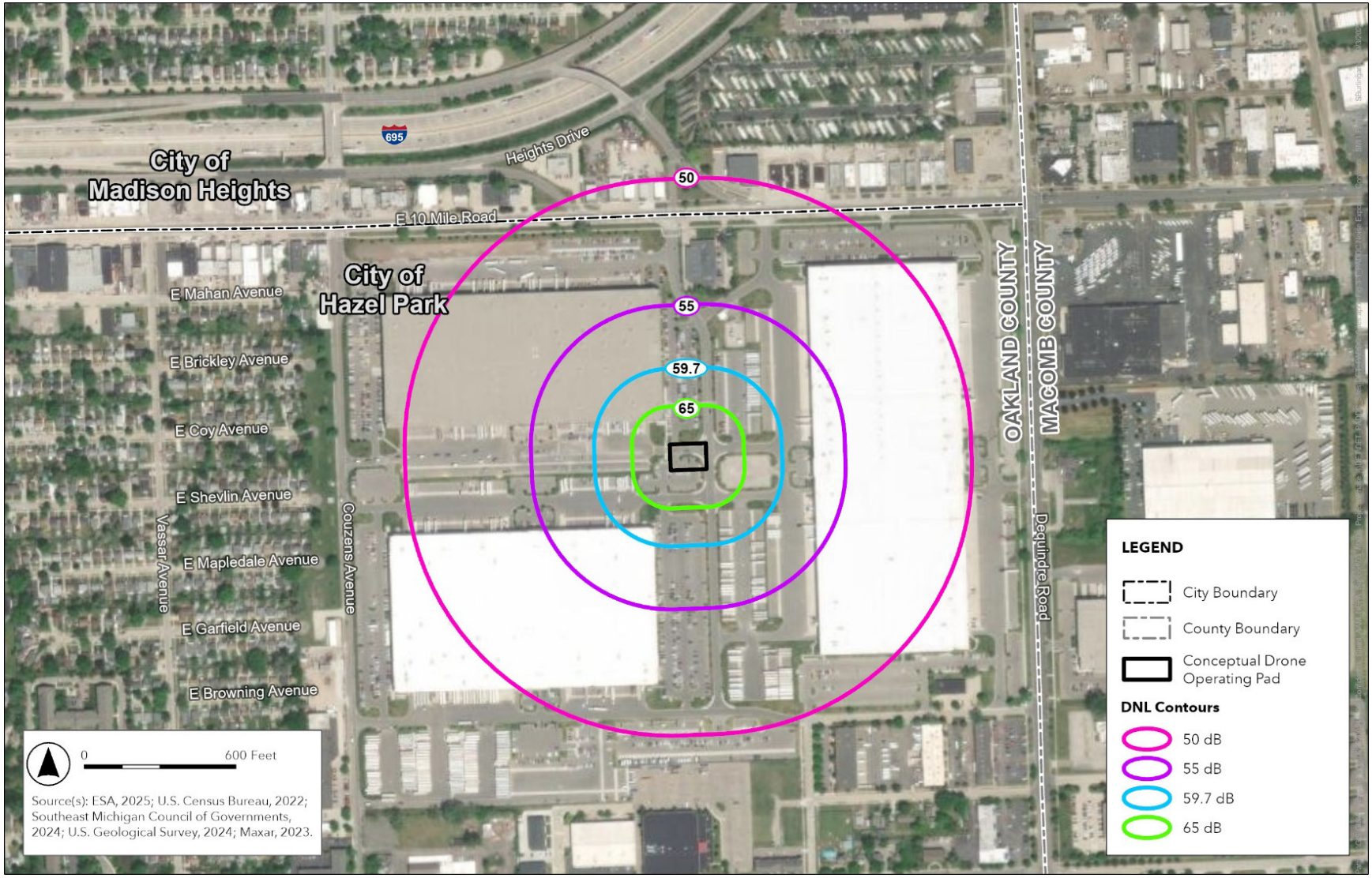
Based on the anticipated average daily maximum of 1,000 deliveries provided by Prime Air for each PADDC, with 100 of the 1,000 daily deliveries (10%) occurring during the period from 6 a.m. to 7 a.m. and 10 p.m. to 10:30 p.m., the extent of noise exposure associated with PADDC operations is shown in **Figures 3-1** through **3-4**. 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 night-time 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	550	300	300	150

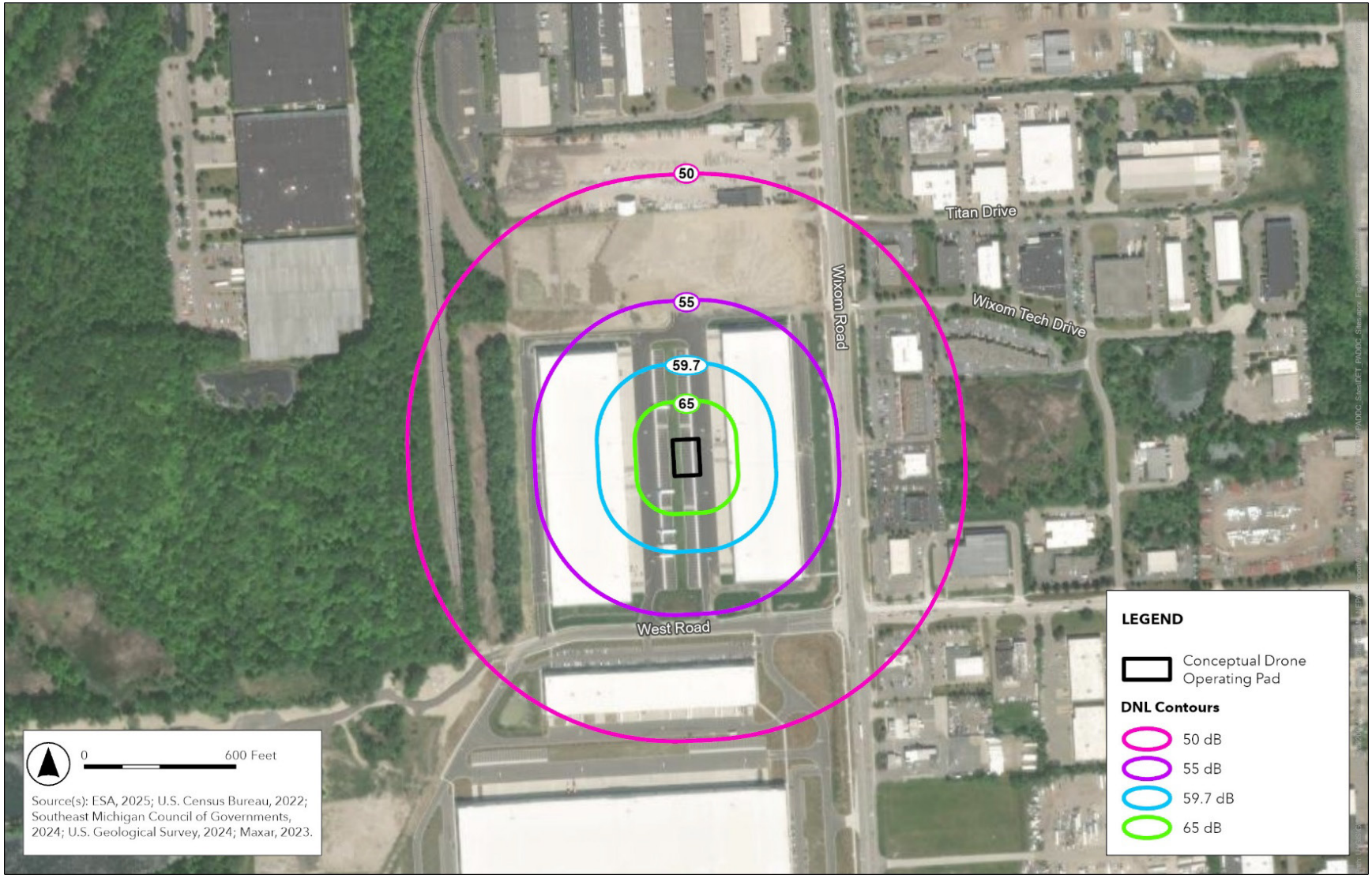
SOURCE: ESA, 2025.

[61] Federal Aviation Administration, Fundamentals of Noise and Sound. Available: https://www.faa.gov/noise/aviation_noise/fundamentals_of_noise, accessed April 30, 2024.



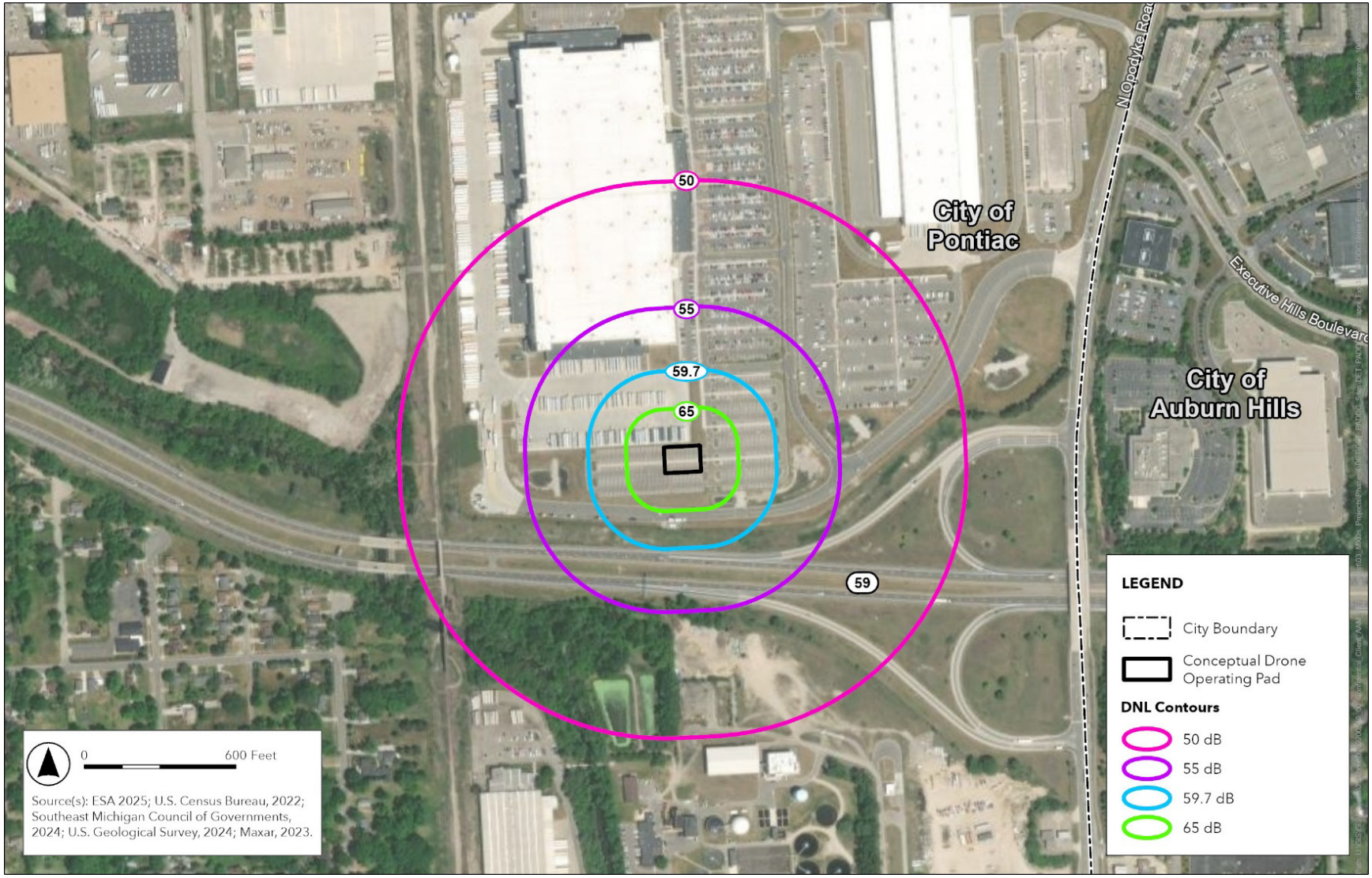
SOURCE: ESA, 2025; U.S. Census Bureau, 2022; Southeast Michigan Council of Governments, 2024; U.S. Geological Survey, 2024; Maxar, 2023.

Figure 3-1
Noise Exposure Contours – SMI1 PADDC



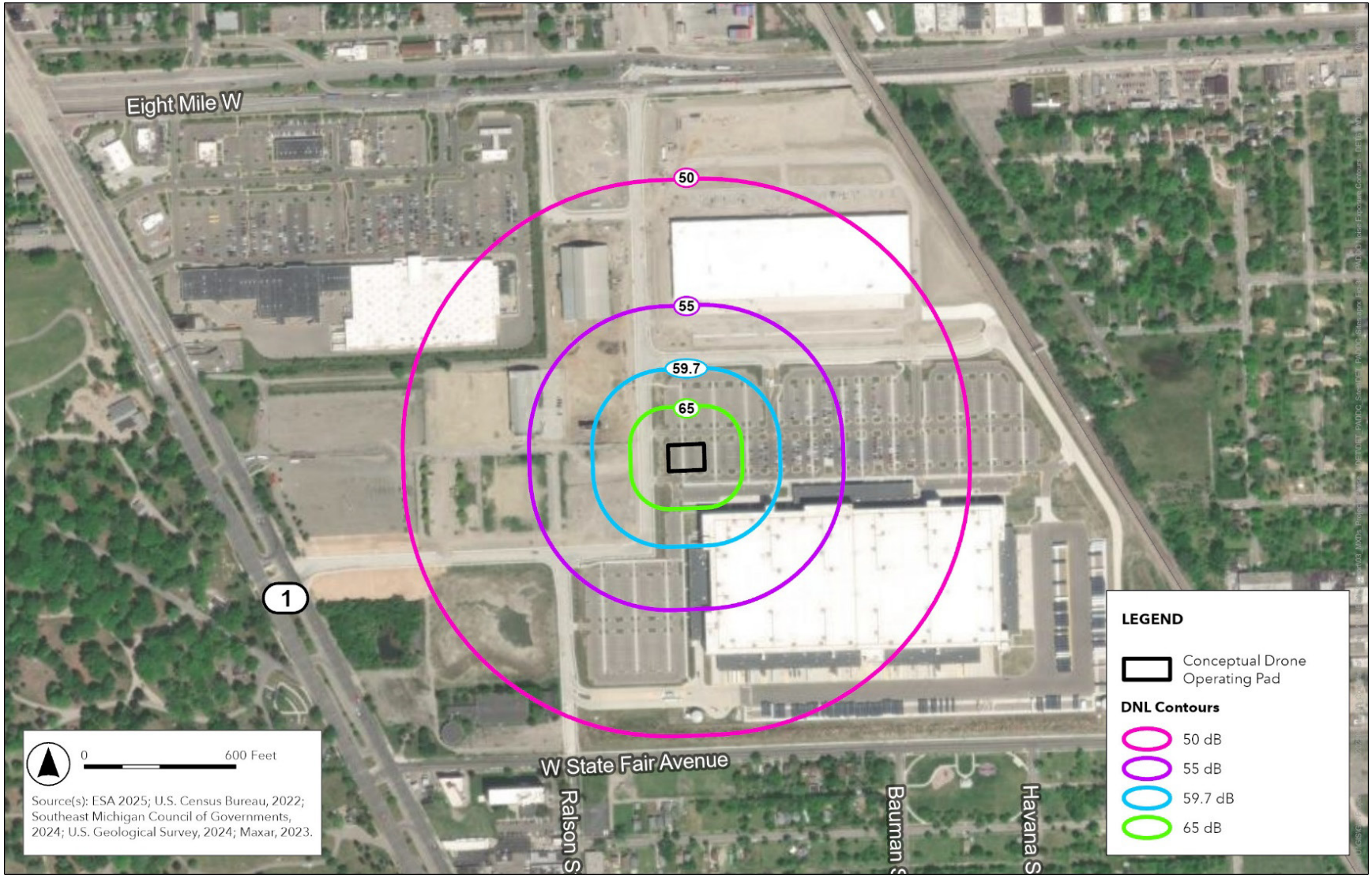
SOURCE: ESA, 2025; U.S. Census Bureau, 2022; Southeast Michigan Council of Governments, 2024; U.S. Geological Survey, 2024; Maxar, 2023.

Figure 3-2
Noise Exposure Contours – STW1 PADDC



SOURCE: ESA, 2025; U.S. Census Bureau, 2022; Southeast Michigan Council of Governments, 2024; U.S. Geological Survey, 2024; Maxar, 2023.

Figure 3-3
Noise Exposure Contours – DET3 PADDC



SOURCE: ESA, 2025; U.S. Census Bureau, 2022; Southeast Michigan Council of Governments, 2024; U.S. Geological Survey, 2024; Maxar, 2023.

Figure 3-4
Noise Exposure Contours – DET6 PADDC

Noise Exposure for En Route Operations

As described in the Noise Technical Report in **Appendix E**, the drone is expected to typically fly the same outbound flight path between PADDCs and delivery points and inbound flight path back to the PADDCs. While the total average daily deliveries from each PADCC is 1,000, the number of overflights in a day will be dispersed because PADCCs are centrally located in each proposed operating area 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 PADCCs 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 night-time 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. It was conservatively assumed that when two or more MK30 drone operating areas overlap, overflights associated with an additional 950 daytime equivalent deliveries would be estimated, per operating area overlap. 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 the action area. For areas with two overlapping operating areas, the estimated en route noise levels could reach 48.9 dB, respectively.

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.[62] 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

APE 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
1[4]	≤15	<= 5,475	57.5	55.6	52.8	51.6	50.7	50.1

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.
4. Assumes conservative estimate of overflights associated with the overlap of two operating areas with 1,000 deliveries or 1,887 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 48.9 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 the action area for a single PADCC operating area, and when two PADDC operating areas overlap, the estimated en route noise could reach up to DNL 48.9 dB, respectively. Lastly, the resulting noise exposure at any residential-zoned property line would not be expected to exceed DNL 50.1 dB, even in instances where there is overlap between two PADCC operating areas.

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

62 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 square. 125 ft represents a 125-ft lateral width of the parcel rounded up to the nearest 25 ft. Available: https://www.census.gov/construction/chars/xls/soldlotsize_cust.xls, accessed January 18, 2024.

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.

3.6.3.3 Reasonably Foreseeable Effects

Per FAA Order 1050.1G, Appendix C,[63] 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[64]
- For DNL 45 dB to < 60 dB: ± 5 dB[65]

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, one seaplane base, 16 heliports, and three hospitals located in the MK30 drone's four proposed areas of operations. Of which, the Class D surface area of the Coleman A. Young International Airport (DET), overlaps with a portion of the drone's proposed area 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**.

63 https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050.1G.pdf.

64 The FAA considers these increases to be "reportable" but not a significant impact.

65 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 with two overlapping PADCC operating areas 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 Action 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 Action 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 the Proposed Action would result in visual impacts to 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 the Proposed Action would contrast with, or detract from, the visual resources and/or the visual character of the existing environment. In this case, visual effects would be limited to the introduction of a visual intrusion—a 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 action 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 action 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 Detroit 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 action areas, including Section 4(f) properties. The short duration that each drone flight could likely be seen from most of the resources 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 action 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 foreseen 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.

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CHAPTER 4
List of Preparers and Agencies Consulted

4.1 Preparers

Name and Affiliation	Years of Industry Experience	EA Responsibility
FAA Evaluators		
Nicholas Baker, FAA AUS (UAS Integration Office, Safety & Integration Division)	15	Environmental Protection Specialist, Biological Resources, Document Review
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, Michigan Ecological Services Field Office
Michigan State Historic Preservation Office
Bay Mills Indian Community
Grand Traverse Band of Ottawa & Chippewa Indians
Hannahville Indian Community
Keweenaw Bay Indian Community of the Lake Superior Band of Chippewa Indians
Lac Vieux Desert Band of Lake Superior Chippewa Indians
Little River Band of Ottawa Indians
Little Traverse Bay Bands of Odawa Indians
Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians (Gun Lake Tribe)
Nottawaseppi Huron Band of the Potawatomi
Pokagon Band of Potawatomi Indians
Saginaw Chippewa Indian Tribe of Michigan
Sault Ste. Marie Tribe of Chippewa Indians