

Orange County Advanced Air Mobility (AAM) Feasibility Study

Feasibility Analysis and Recommendations

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1

Introduction

This technical memorandum documents the Feasibility Analysis and Recommendations for the Orange County Advanced Air Mobility (AAM) Feasibility Study. This builds upon previous work efforts to document existing conditions within unincorporated Orange County, with focused context for the International Drive Community Redevelopment Area (I-Drive CRA), as well as the methodology for assessment of feasibility of AAM within the County. Findings presented here include optimal subarea locations for vertiport development and operations, but are not intended to be parcel-specific.

The Feasibility Analysis and Recommendations technical memorandum summarizes the findings of the analysis conducted by VHB in accordance with the methodology established for this study. A brief description of the methodology and screening factors is included in the next section, followed by a description of the geospatial analysis, and finally recommendations for optimal locations for AAM development and operations. The data layers and results can be reviewed at this web map location: [Orange County Advanced Air Mobility \(AAM\) Feasibility Study](#).

2

Methodology Summary

The Orange County Advanced Air Mobility (AAM) Feasibility Study Methodology established a screening framework for identifying areas in unincorporated Orange County that may be suitable for future vertiport development and AAM operations. The report is not intended to designate final vertiport sites or flight paths; rather, it provides a parcel-based, GIS-driven methodology to support later analysis, public engagement, and site-specific review by Orange County staff from relevant departments. The methodology recognizes that Orange County's authority is centered primarily on land use and surface transportation, while the Federal Aviation Administration retains authority over airspace, aviation safety, and flight operations.

The methodology is designed to evaluate potential vertiport suitability through a layered geospatial analysis of parcels and contiguous "subareas" across unincorporated Orange County. The framework applies screening categories: land use, zoning, and property rights; airspace; environmental conditions; connectivity; and other strategic factors such as economic development potential and partner agency project alignment. The VHB team performed the analysis and generated a "heat map" that visually differentiates areas meeting more screening criteria from those meeting fewer criteria. These findings were published an interactive web map located here: [Orange County Advanced Air Mobility \(AAM\) Feasibility Study](#).

In addition to the unincorporated County-wide analysis, VHB prepared a supplemental methodology for the International Drive Community Redevelopment Area (I-Drive CRA) to incorporate the unique characteristics of this district.

The screening criteria are summarized briefly below. The full Methodology document is included as **Appendix A**.

2.1 Land Use, Zoning and Property Rights Concerns

The methodology gives substantial weight to zoning and entitlement conditions because these are among the County's most direct regulatory tools. VHB evaluated both the existing Orange County Code (in effect) and the Orange Code (pending resolution) to determine where vertiports are allowed either by right or by special exception. Areas where vertiports are permitted by right, or as a permitted use with additional standards, are treated as more suitable than areas requiring special exception approval. Under the current Orange County Code (in effect), industrial zoning

districts allow vertiports by-right and are considered more suitable, while several agricultural, rural estate, and commercial districts would require special exception review. Under the Orange Code (pending resolution), vertiports are permitted with additional standards in **LI** and **HI** districts and require special exception in **T2 Rural, T5 Center, and T6 Urban Core**. All other zoning categories are excluded from the land use analysis. Landowners or vertiport proponents may petition the County to change their zoning through the standard rezoning process.

2.2 Airspace

Airspace layers (including Airspace Classifications, flight obstructions, and navigable surfaces) are provided for informational purposes only. The exclusive authority to regulate airspace, including flight paths, rests with the Federal Aviation Administration.

2.3 Environmental

The methodology applied a conservative 10,000-foot proximity screen¹ using a filtered subset of FDEP's authoritative Solid Waste Facilities layer. The full FDEP point layer is shown in the web map for context, while the scoring buffer excludes inactive or not clearly active records, records with a null facility class, Disaster Debris Management Sites, and Recovered Materials Processing Facilities (RMPFs). RMPFs are treated separately because qualifying RMPFs are not automatically considered solid waste management facilities under Florida's statutory framework. The screen identifies parcels that may require further review under Florida aviation site approval and wildlife-hazard considerations, with site-specific review needed to confirm facility type, operating status, and wildlife-attractant relevance. Parcels located entirely within wetlands, floodplains, or conservation areas were deemed unsuitable and screened out. Noise was acknowledged as an important issue, but the methodology does not use noise as a suitability determinant due to limited available eVTOL noise data. In addition, the County is precluded from regulating aviation-related noise, as exempted in 15-185 (d) *Aircraft and airport activity conducted in accordance with federal laws and regulations* of the Orange County Code of Ordinances.

2.4 Connectivity

A core premise of the methodology was that vertiports should function as part of a broader multimodal transportation system rather than as isolated aviation facilities. To assess this, the methodology created **½-mile buffers** around major transportation assets identified in Vision 2050 and related planning documents, including SunRail stations, LYNX Superstops, transit centers, park-and-ride locations, high-capacity corridors, major transit trip generators, future LYNX routes, and warehouse/distribution terminals. Parcels overlapping these buffers are considered more suitable as potential vertiports, with additional emphasis placed on fixed origins and destinations such as major transit nodes and trip generators.

¹ Rule 14-60.005(5)(i), Florida Administrative Code (FAC)

2.5 Other Factors

The methodology also considers whether potential vertiport subareas align with Orange County's regional partners. Candidate areas may receive additional support if they are geographically aligned with the County's five-year Capital Improvement Program or related investments by MetroPlan Orlando, FDOT, the Central Florida Expressway Authority, and the Florida Turnpike Enterprise. The hospitality sector is considered in the International Drive CRA, described in the next section. Alignment with these factors was not quantitatively scored but was considered to identify the three optimal locations for AAM development and operations.

2.6 International Drive CRA

The methodology includes a specialized framework for the International Drive Community Redevelopment Area (I-Drive CRA), recognizing that it is the County's most intense tourism and employment district. The area includes major attractions, hotels, restaurants, entertainment destinations, and the Orange County Convention Center, and it is shaped by overlapping planning layers including the I-Drive CRA, the I-Drive District Overlay, and the pending Orange Code. Similar to the countywide methodology, successful AAM integration in this district would require treating vertiports as components of a multimodal visitor mobility system, consistent with planning goals for walkability, mixed use, placemaking, and economic development.

Within the I-Drive CRA, the land use analysis follows the countywide approach, but now includes high-intensity transects such as T6 General, T6 I-Drive, and T6 Universal from the Orange Code (pending resolution), as well as buffered consideration of Special Zone Theme Park and Special Zone Civic areas. However, the methodology excludes all parcels within the I-Drive District Overlay, which prohibits helicopter commercial enterprises such as heli-tours or similar uses. This restricts the vast majority of parcels within the I-Drive CRA that would have scored favorably otherwise. At present, "vertiports" and "advanced air mobility" are not specifically listed in the I-Drive District Overlay, and it would be possible for a determination to be made, consistent with the I-Drive Code, that this use is an "Unlisted Dissimilar Use" and permitted in the District. This private sector-initiated process would require an application to the Development Review Committee (DRC) and a hearing before the Orange County Board of County Commissioners.

3

Feasibility Analysis Results

Using the methodology described in the previous section, VHB performed a geospatial analysis on the data layers identified in the Existing Conditions Technical Memorandum. Each parcel in unincorporated Orange County was included in this analysis, and parcels that were wholly within sensitive environmental features (wetlands, floodplain, conservation area), had proximity to solid waste facilities, or were without zoning permissive of a vertiport were screened out of the next phase of analysis. Parcels were then quantitatively scored based upon zoning classification (vertiport permitted; or allowed as special exception) and proximity to connectivity factors (SunRail Stations, LYNX stops, etc.). This resulted in a subset of parcels, ranging from 3 points (special exception use, not within a ½ mile buffer of a connectivity factor) to 8+ points (permitted use, within a ½ mile buffer of one or more connectivity factor).

While the analysis was completed using parcel-based data, the Feasibility Study is not intended to identify potential vertiports at the parcel or site-specific level. Therefore, the VHB team created a “heat map” to differentiate subareas in generalized geographic areas. The heatmap depicts the spatial distribution of potential vertiport subareas (comprised of multiple parcels) that appear more suitable (meeting more criteria) and appear less suitable (meeting fewer criteria). Map 1 shows the potential vertiport suitability heatmap in unincorporated Orange County.

In addition, the Feasibility Analysis is not intended to depict where Orange County “wants” vertiport development to occur. No public investments are planned for vertiport development at this time, although the County will pursue the appropriate coordination measures by participating in collaborative discussions with landowners, vertiport operators, and partner agencies like the Florida Department of Transportation. The County is not directing potential vertiport locations, only enhancing readiness to appropriately review market-driven proposals.

3.1 Countywide Analysis

Several prominent patterns appear on **Map 1A (Orange County Code, in effect)**, including:

- Apopka/Rural Settlements (North of Apopka, west of Wekiwa Springs State Park). This subarea is primarily agricultural, meaning that vertiports are allowed by special exception. There is a cluster of industrial parcels along the US 441 corridor, north of the Orlando Apopka Airport. This area is limited in multi-modal connections between potential future vertiports and surrounding uses.
- Northwest Orange County. This subarea features many industrial and commercial parcels along the Lee Road and Edgewater Drive corridors, with proximity to the LYNX Rosemont Super Stop. It is also located centrally to the Town of Eatonville and Cities of Maitland, Winter Park and Orlando, providing access to a variety of destinations.
- Goldenrod Road corridor. This subarea includes many industrial parcels, which allow vertiports as a permitted use. However, proximity to Orlando Executive Airport may limit vertiport potential.
- South of University of Central Florida (UCF)/Central Florida Research Park. This subarea includes many industrial parcels that are within the buffer of an Activity Center, as depicted on the Vision 2050 Comprehensive Plan Map 2A Major Transit Trip Generators.
- East of the Econlockhatchee River. This portion of the County is primarily agricultural (vertiport as a special exception) with very low-density rural development. There are scattered subareas that are potentially suitable for potential vertiports, but they are disconnected from existing or planned multimodal transportation. The low-density nature of this area does not suggest high tempo vertiport operations. However, the area may include less use and structure conflicts while also providing more connections to and from rural communities
- South of Oak Ridge (Sand Lake Road and Orange Blossom Trail). This subarea, anchored by Florida Mall, has one of the biggest concentration of Industrial sites (vertiport as permitted use) in the County, as well as proximity to the LYNX Florida Mall Super Stop.
- Pine Castle (North of Sand Lake Road and S. Orange Ave). This subarea features a high concentration of Industrial sites (vertiport as permitted use) and close proximity to the Sand Lake Road SunRail Station.

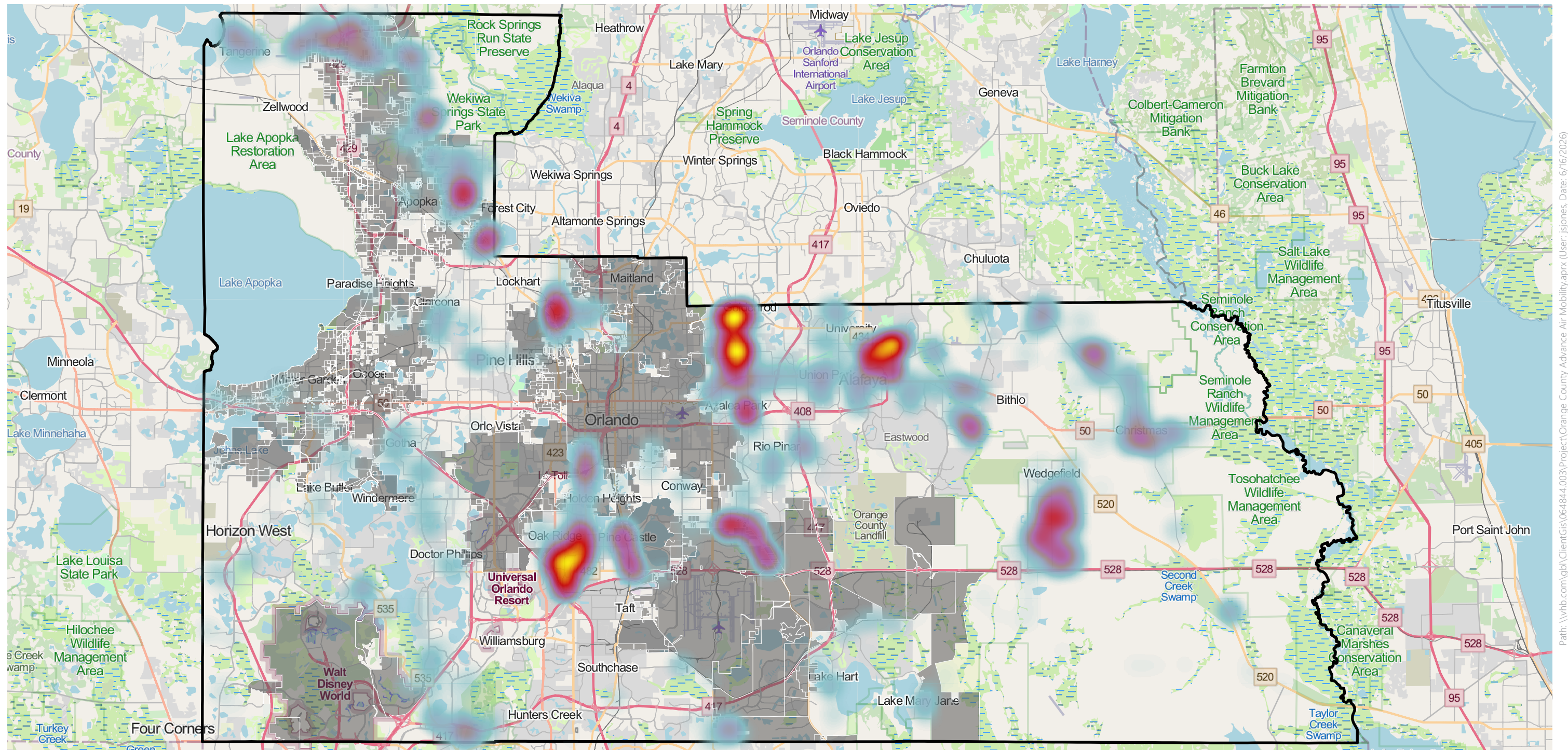
Map 1B (Orange Code, pending resolution), displays similar patterns to the existing Orange County Code (in effect). In this analysis, the existing code zoning classifications are substituted with Light Industrial (LI) and Heavy Industrial (HI) districts (vertiports are permitted with additional standards) and T2 Rural, T5 Center, and T6 Urban Core (vertiports require special exception). The Orange Code (pending resolution) would increase overall vertiport development potential within the County (653 by right parcels increased to 1,140 parcels; and 4,355 special exception parcels increased to 7,520 parcels).

Additional potentially suitable vertiport subareas include the following:

- North of Fairview Shores (centered on US 441 / Orange Blossom Trail, John Young Parkway, and Edgewater Drive). This subarea features Light Industrial, Heavy Industrial and T5 parcels. The LYNX Rosemont Super Stop is approximately ½ mile southwest from the intersection of Edgewater Drive and John Young Parkway, while Lake Weston Elementary School is located approximately ¼ mile to the northeast.

- North of Orlando International Airport (Hoffner Avenue and Narcoossee Road corridor). This subarea features a high concentration of Light Industrial and Heavy Industrial parcels. The proximity to Orlando International Airport may present logistical advantages due to synergy other aviation related uses and industries; however, it may also present airspace conflict challenges, to be determined at the time of vertiport application.
- Wedgefield area. This subarea features a high concentration of T2 Rural parcels. Wedgefield is served by LYNX NeighborLink 621 for on-demand mobility and provides connectivity to Waterford Lakes Town Center.

Map 1A: Countywide Vertiport Suitability (Orange County Code, in effect)



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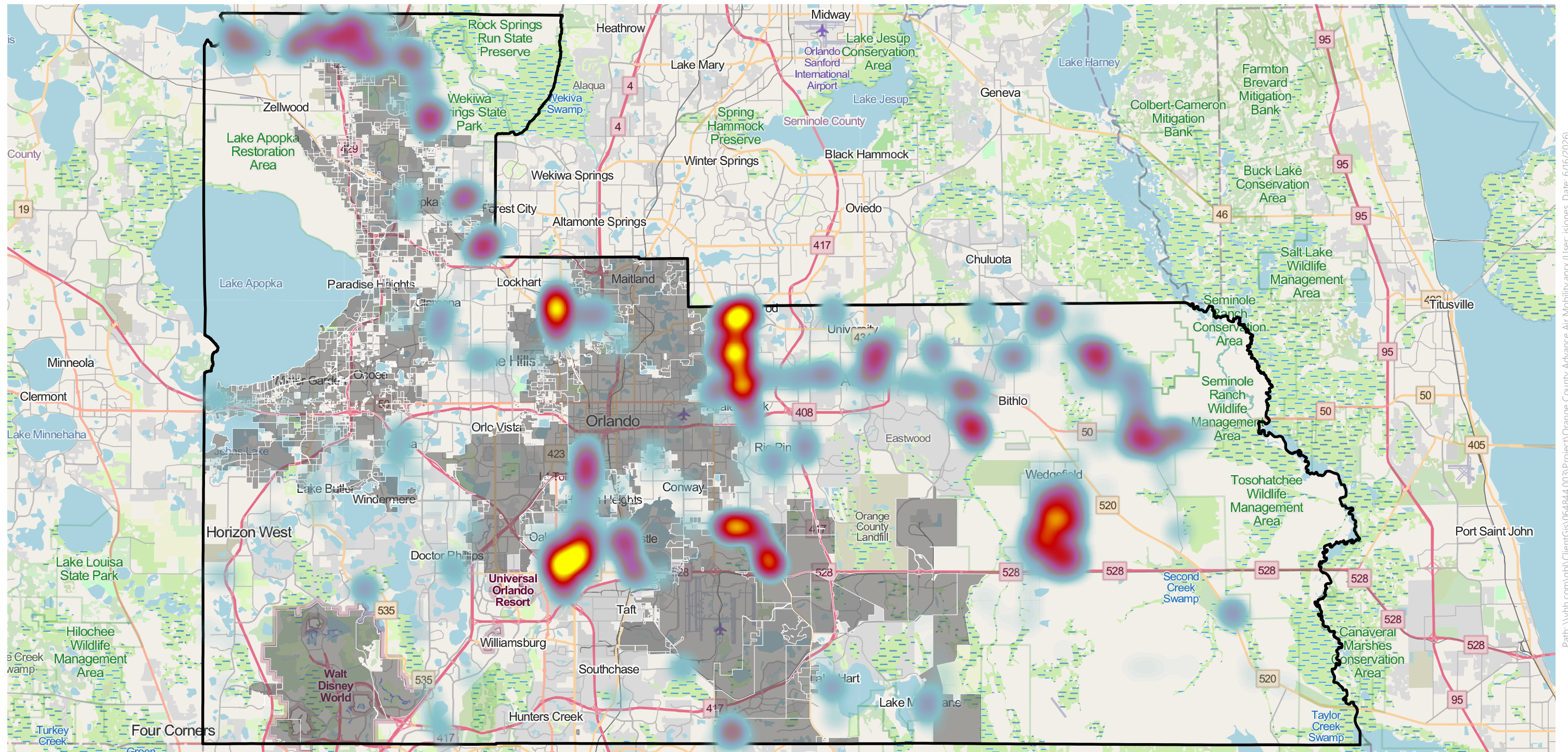
Orange County Code (in effect) Heatmap

Orange County
 Jurisdictions

Less suitable
 More suitable



Map 1B: Countywide Vertiport Suitability (Orange Code, pending resolution)



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Orange Code (pending resolution) Heatmap

Less suitable
 More suitable

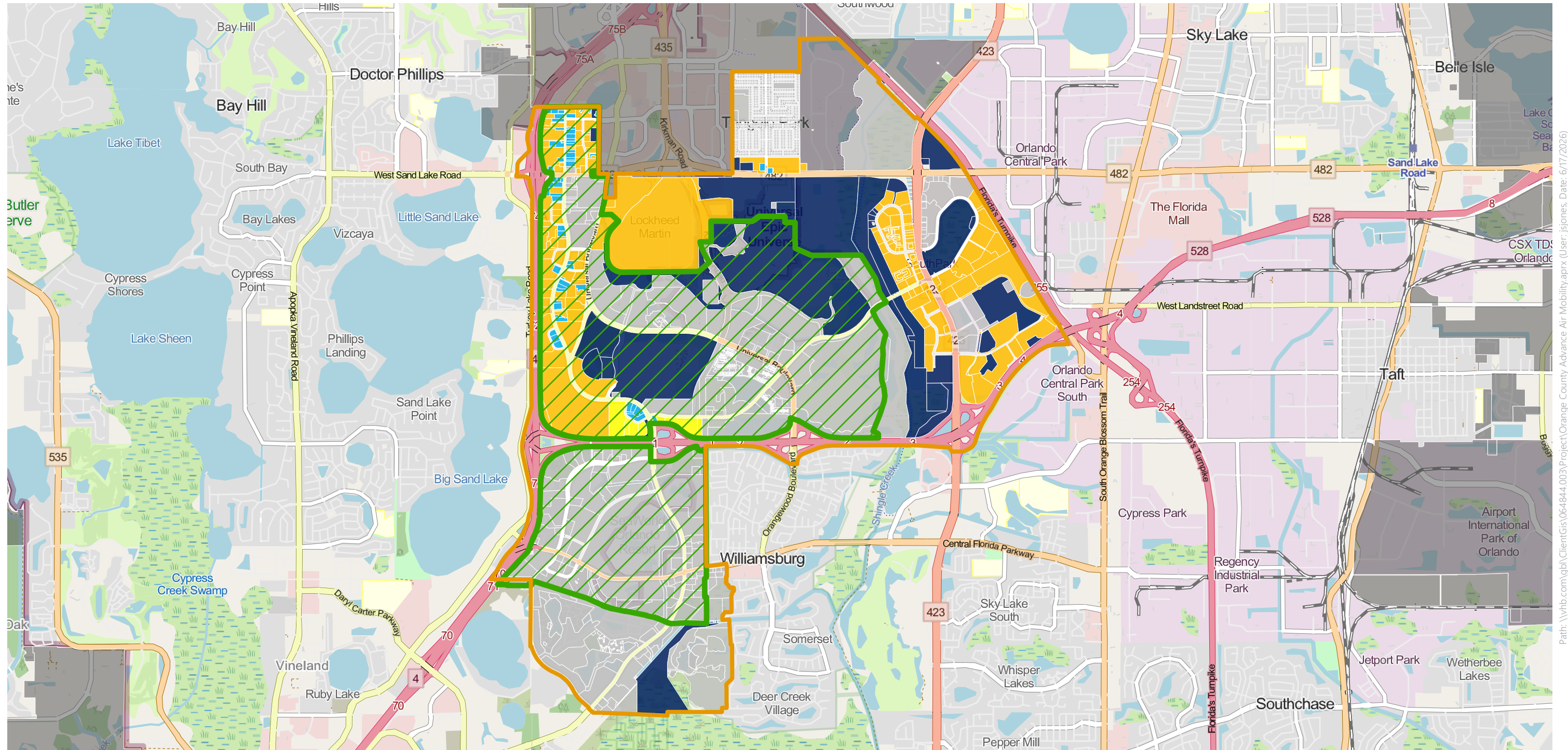
Orange County
 Jurisdictions



3.2 I-Drive CRA Analysis

As stated previously, the I-Drive District Overlay Zone prohibits helicopter commercial enterprises, including heli-tours or similar uses. This Overlay Zone applies to the vast majority of eligible parcels within the I-Drive CRA, including the Orange County Convention Center (OCCC), theme parks, and hotel areas. Potential vertiport subareas outside of the I-Drive District Overlay Zone are depicted on **Map 2** and are centered on Destination Parkway and S John Young Parkway. Additional potential subareas are depicted on Sand Lake Road, adjacent to the Tangelo Park community. If a vertiport was proposed in this area, the land use compatibility and buffering strategies described in **Section 5** should be required. Other areas within the CRA but not the I-Drive District Overlay include several large parcels owned by Lockheed Martin.

Map 2: I-Drive CRA Map



- Excluded (Parcel Size)
- Excluded (Wetlands/Flood Zone)
- Excluded (Zoning)
- Scored (Low to Moderate Opportunity)
- Scored (Moderate to High Opportunity)
- Orange County
- Jurisdictions
- I-Drive CRA
- I-Drive District Overlay (Helicopter Commercial Enterprises prohibited)



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4

Optimal Areas

4.1 Countywide Analysis

Using the heat map analysis and current zoning (Orange County Code, in effect), the VHB team examined different factors to select three areas of the County that appear suitable for potential vertiport locations. Although not a quantitative screening criteria of the methodology, proximity to schools and neighborhoods was qualitatively reviewed to promote land use compatibility. Early research by OEMs and NASA² suggests that eVTOL aircraft may produce lower noise levels than some conventional aircraft in certain operating conditions, but there is not yet a settled industry consensus on expected noise levels, community impacts, or standardized noise thresholds. As previously stated, the County cannot regulate aviation noise that operates in accordance with federal standards per Ch. 15, Orange County Code.

South of UCF/Central Florida Research Park

This subarea (shown on **Map 3**) includes many industrial parcels that are within the buffer of an Activity Center, as depicted on the Vision 2050 Comprehensive Plan Map 2A Major Transit Trip Generators. It also has strong regional roadway access, including SR 408; SR 50 / Colonial Drive; Alafaya Trail; University Boulevard; and access near SR 417. There is existing bus service and high travel demand associated with UCF and nearby activity centers.

This is one of Orange County's strongest non-downtown employment and institutional centers. Nearby anchors include University of Central Florida and Central Florida Research Park, and

² Acoustic Testing of the Joby Aviation Propeller in the National Full-Scale Aerodynamics Complex 40- by 80-Foot Wind Tunnel. https://rotorcrafterc.nasa.gov/Publications/files/Schatzman_AIAA_2025.pdf

multiple defense, simulation, aerospace, technology, and research employers; institutional and professional office uses; and student, faculty, visit

or, and business travel demand. The employment density and innovation-oriented economy make this area especially well-suited for an early AAM node. Economic development opportunities in this subarea include advanced mobility research and demonstration projects; university-industry partnerships; aerospace, defense, simulation, and technology-sector mobility; workforce development tied to aviation, electrification, autonomy, and advanced transportation; and the potential for business travel between UCF, Downtown Orlando, Orlando International Airport and the tourism corridor.

There are a number of schools and residential areas in the general vicinity, so a potential vertiport must be carefully sited internal to large industrial, office, flex, or employment-focused parcels of the Central Florida Research Park, along major arterials rather than local residential streets, and away from K-12 schools, student housing, and residential subdivisions.

South of Oak Ridge (Sand Lake Road and Orange Blossom Trail)

This subarea (shown on **Map 4**), anchored by Florida Mall, has one of the biggest concentration of Industrial sites (vertiport as permitted use) in the County, as well as proximity to the LYNX Florida Mall Super Stop. It is well connected to the multimodal network, including Sand Lake Road; Orange Blossom Trail / US 441; John Young Parkway; Orange Avenue, SR 528 / Beachline Expressway; I-4; Orlando International Airport access corridors; and Florida Mall LYNX Super Stop. The subarea is close to major employment and activity centers, including Florida Mall; South Orlando retail and service-sector employment; airport-support commercial areas; industrial and warehouse districts; hotels and visitor-serving uses; and nearby access to the tourism corridor and Downtown Orlando. This gives the area a strong practical demand base for workers, visitors, airport users, and commercial travel.

A vertiport in this subarea could support economic development through redevelopment of older commercial corridors; commercial reinvestment around Florida Mall and Sand Lake Road; and business, visitor, and logistics-related AAM services. There are many schools and neighborhoods in Oak Ridge and Pine Castle, and therefore site selection should focus on large commercial, industrial or warehouse parcels, transit-adjacent parcels near bus routes, and fronting major arterials or expressway ramps.

Northwest Orange County

This subarea (shown on **Map 5**) is well-positioned for a potential vertiport because it is located between several major activity centers. With access to SR 434, SR 414/Maitland Boulevard, Lee Road, US 17-92, and I-4, the subarea could function as a northwest Orange County mobility gateway, linking AAM service with ground transportation and rideshare. In addition, the Lockhart area was recently evaluated by a Technical Assistance Panel by the Urban Land Institute (ULI) Central Florida District Council as a potential Main Street opportunity.³ From this location, a

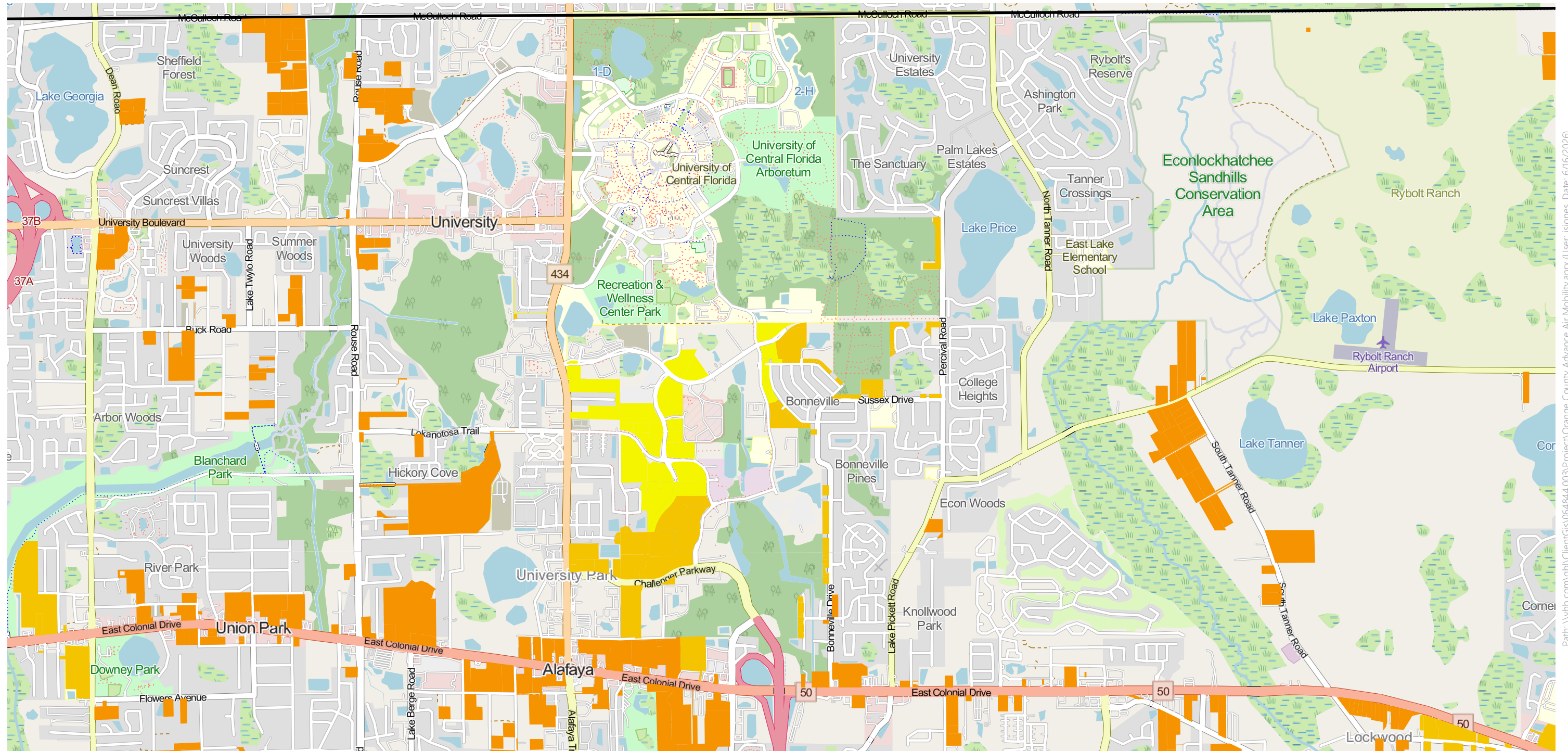
³Main Street Opportunities, Orange County, Florida. Technical Assistance Panel, February 20-21, 2025
<https://www.orangecountyfl.net/Portals/0/Library/Economic%20Development/docs/OrangeCountyMainStreetTAP.pdf>

potential vertiport could serve Maitland's office and employment centers, including the Maitland Boulevard business corridor; Mainland Center, and the Maitland SunRail Station; Eatonville's cultural and heritage destinations, including Kennedy Boulevard, the Zora Neale Hurston Museum, and ZORA! Festival activity; and Winter Park's visitor destinations, such as Park Avenue, Rollins College, the Morse Museum, Hannibal Square, Winter Park Village, and the Winter Park SunRail area. The site could also provide strong access to City of Orlando destinations, especially north and central Orlando districts such as College Park, Ivanhoe Village, The Packing District, Creative Village, and Downtown Orlando.

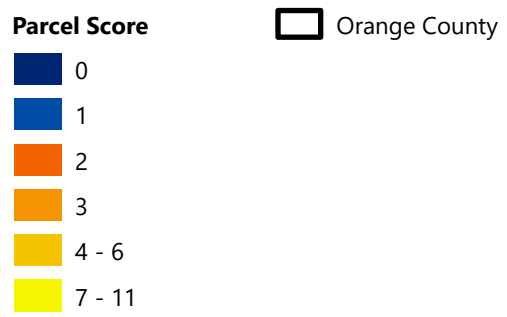
4.2 I-Drive CRA

The most suitable remaining potential vertiport subarea in the I-Drive CRA is along the eastern or northeastern edge of the CRA, outside the I-Drive CRA District Overlay, near Sand Lake Road / International Drive / I-4 / SR 528 access area. This area appears to retain some moderate-to-high opportunity parcels while avoiding the overlay prohibition on helicopter commercial enterprises, maintaining proximity to the tourism and convention market, and providing strong regional roadway access. Please refer to **Map 2: I-Drive CRA District**.

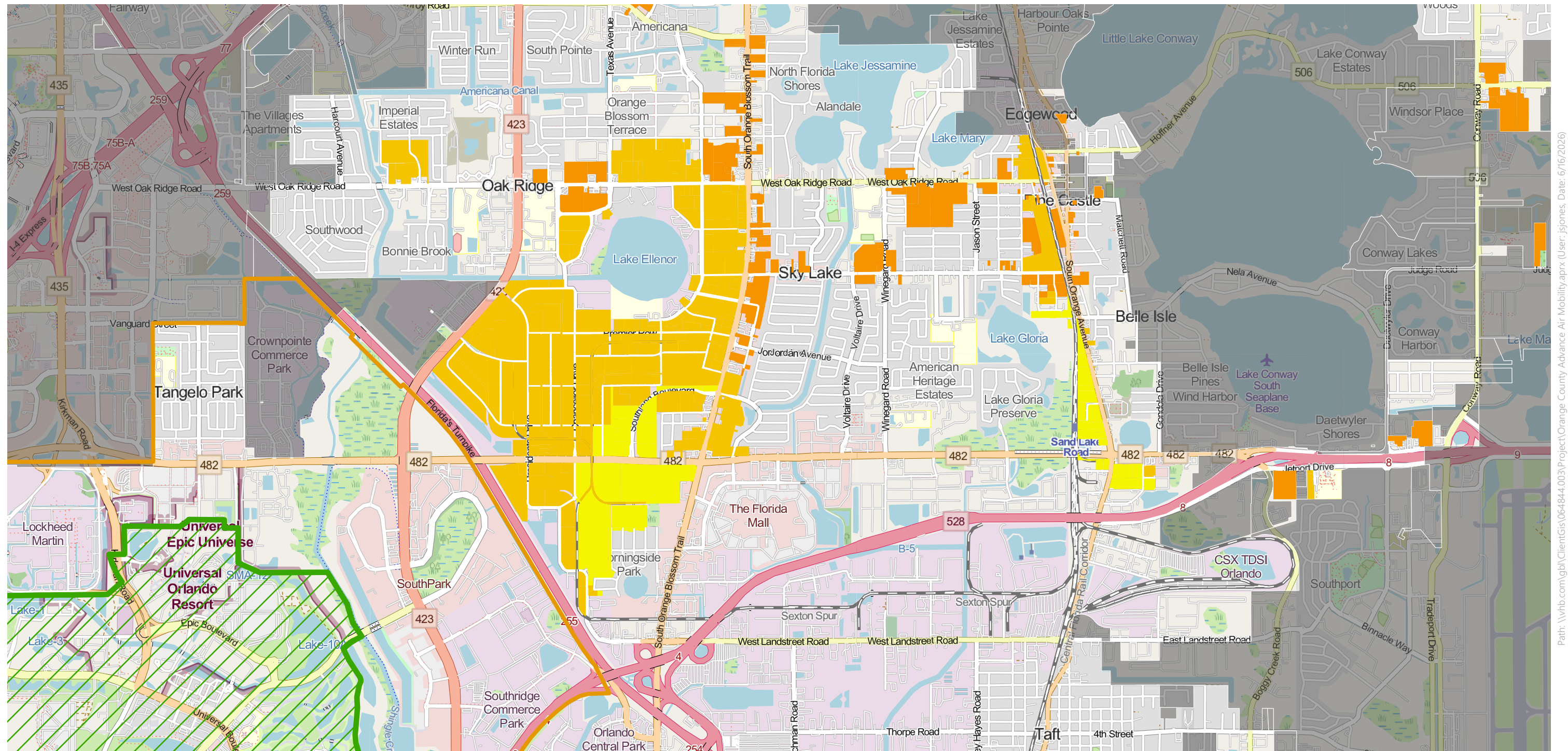
Map 3: Optimal Area 1: South of UCF/Central Florida Research Park



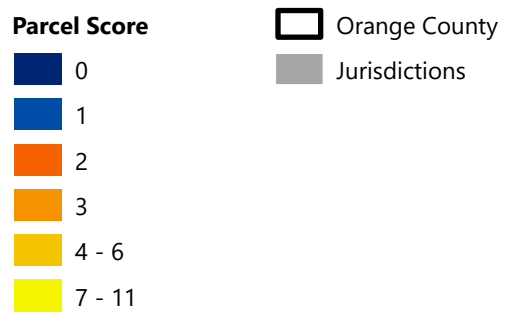
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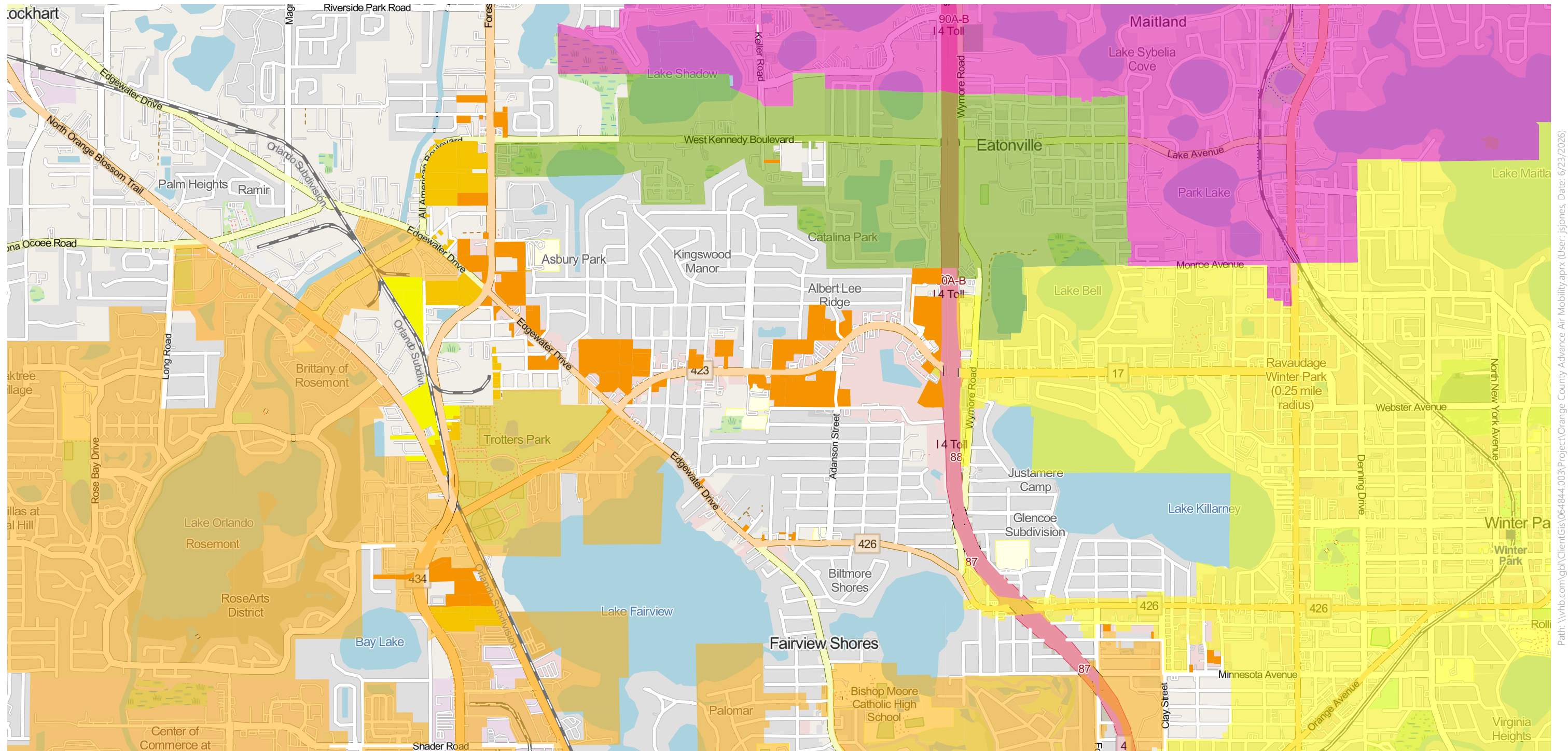
Map 4: Optimal Area 2 South of Oak Ridge (Sand Lake Road and Orange Blossom Trail)



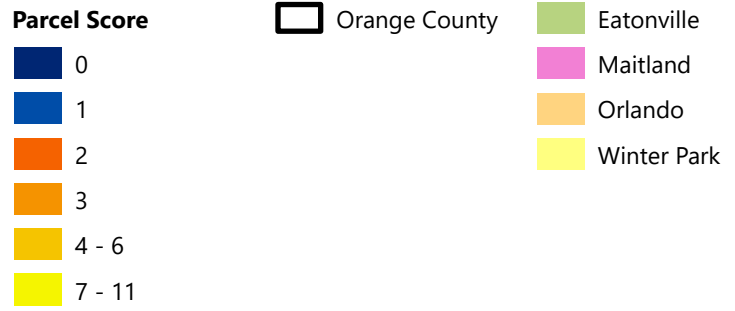
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Map 5: Optimal Area 3 Northwest Orange County



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5

Recommendations and Next Steps

The heatmap and optimal subareas described in the previous sections identify areas where vertiports may be developed consistent with the current Land Development Code. The subareas are not intended to represent customer demand or vertiport operator business plans but do represent areas of the County with high travel patterns, economic activity, and connectivity to the existing or planned multimodal transportation network that may be of interest to the private-sector for proposed vertiport development.. Mapping these subareas is an important step towards proactive planning to maximize community benefit and minimize community impacts resulting from the potential introduction of AAM into Orange County.

It is widely believed that early AAM operations will use existing airports, including Orlando International Airport (MCO) and other General Aviation (GA) airports⁴. This is supported by the FAA AAM Implementation Plan (Innovate 28), which states *"To enable near-term operations, operators and manufacturers desire to use existing infrastructure, including commercial service airports, underutilized GA airports, and heliports."*⁵ As the industry matures, it is anticipated to shift focus to dense urban environments, providing a new form of mobility that does not currently exist in these areas today.

⁴ Remarks from eVTOL manufacturers, operators, and vertiport developers at the May 2026 Florida Advanced Air Mobility Symposium hosted at Embry Riddle Aeronautical University.

⁵ FAA Advanced Air Mobility (AAM) Implementation Plan: <https://www.faa.gov/sites/faa.gov/files/AAM-I28-Implementation-Plan.pdf>

The Feasibility Analysis was limited to parcels without certain environmental constraints and that have current land use rights (permitted, or by special exception) for vertiports today. However, landowners have the option to apply for a rezoning to change their property zoning classification from one that does not allow vertiports to one that does. A rezoning application would be reviewed by Orange County's Planning Division and other County departments and would require public hearings before the Orange County Planning and Zoning Commission and the Orange County Board of County Commissioners. The rezoning application review process addresses consistency with the Comprehensive Plan, compatibility with adjacent land uses, traffic impacts, public facilities and infrastructure capacity, environmental constraints, and other conditions. Therefore, it is possible that future vertiports may be developed in areas not shown in the Feasibility Analysis, and the County may need to supplement the Land Development Code with additional strategies to avoid or minimize impacts on existing communities. In all cases, County planners and administration should review future vertiport siting applications with the context that they should support—not constrain—the County's long-term growth management, redevelopment, placemaking, and public investment objectives, including Vision 2050's Intended and Targeted Growth Sectors, transit-oriented development goals, compact urban form, fiscal sustainability objectives, and the County's multimodal transportation network.

5.1 Land Use Compatibility

The following strategies were included in the Feasibility Study Methodology technical memorandum:

Countywide Avoidance, Minimization, and Mitigation Strategies

Orange County's land use regulatory authority has the greatest impact on this methodology and future vertiport locations, as airspace and other federal aviation preemptions limit the County's ability to affect aviation operations and potential community impacts.

Potential strategies to limit adverse impacts on communities include the following:

- Amend the Land Development Code to require the Air Rights and Future Development Entitlement evaluation and documentation process, as further described in Section 5.2.
- Require public meetings for all potential vertiport projects. All residents, property owners, and stakeholders within 1 mile of a proposed vertiport should be notified.
- At the time of vertiport application, coordinate with the FAA and FDOT to recommend that proposed flight paths avoid existing residential uses, to the extent practicable. The FAA will have final approval authority of airspace related matters.

I-Drive CRA Avoidance, Minimization, and Mitigation Strategies

The following strategies should be considered during site selection and vertiport permitting within the I-Drive CRA to reduce the likelihood of adverse impacts of AAM on adjacent uses and residents.

- Policy ID5.1.1 of the I-Drive Element states *"Buffer techniques and varied development densities and intensities shall be employed to ensure land use compatibility and provide transitional land use activities within and adjacent to the International Drive Activity Center consistent with the objective."* Consistent with this Policy, the County should ask vertiport proponents to describe how AAM operations will be buffered from existing uses, such as residential, schools, and parks. In addition, the proponent should demonstrate the effectiveness of the proposed method of buffering through comparative video footage, three-dimensional modeling, or other data that allows the County to evaluate the proposed buffering method.
- Policy ID5.1.3 of the I-Drive Element states *"The International Drive Activity Center Development Guidelines shall include effective land use buffering regulations to provide for the protection of the Lake Willis single family homes."* Consistent with this Policy, the County should ask vertiport proponents to describe any potential impacts to these residences resulting from anticipated AAM operations. If negative impacts are anticipated, the proponent should describe strategies for mitigation.
- Tangelo Park is located immediately adjacent to C-2 zoning, which permits vertiports as a special exception. If a private vertiport is proposed in this location, County authorities should require visual buffering, community engagement, noise modeling studies, and other mitigation strategies as potential conditions of approval.
- SeaWorld Orlando is home to many different forms of animals and marine life. If a private vertiport is proposed in near proximity, County authorities should require the proponent to coordinate with SeaWorld and the FAA to determine potential impacts of AAM operations on animal health and develop mitigation strategies.

5.2 Air Rights and Future Development Entitlement

When a heliport or vertiport proponent submits FAA Form 7480-1 (Notice of Landing Area Proposal), the FAA evaluates airspace compatibility under Advisory Circular 150/5390-2 and Part 77 of the Federal Aviation Regulations. That review is a snapshot in time: it captures existing obstacles and proposed structures at the moment of filing. It does not account for future development potential on adjacent parcels.

This creates a structural gap with direct implications for vertiport siting, airspace permitting, and long-term operational viability. Specifically:

- FAA Form 7480-1 requires the height of buildings and obstacles and their distance from the helipad, but only as they currently exist.

- No mechanism exists within the 7480-1 or 7460-1 (Notice of Proposed Construction) process to require or evaluate the maximum allowable height under current zoning entitlements on adjacent parcels.
- A FAA “no objection” determination is not a recorded encumbrance against neighboring properties. It conveys no restriction on future development to those heights.
- Landowners hold air rights up to their zoned maximum height as property entitlement, regardless of whether they have built to that height.
- Engineering Brief 105A provides design guidance for the planning, design and construction of vertiports, but does not address whether a proposal creates an air navigation or obstruction issue.

Legal and Property Rights Dimensions

The underlying legal framework traces to *Causby v. United States* (1946), in which the Supreme Court held that landowners possess airspace above their property to a “reasonable height”, but that government overflight at low altitude can constitute a taking requiring just compensation. Zoning height maximums represent the ceiling of a property owner’s reasonable, legally protected air rights.

For vertiport planning, three distinct legal risks arise:

Regulatory Taking

If a flight path or approach/departure surface is established over a parcel, and local authorities subsequently restrict that parcel’s development height to protect the flight path, the landowner may have a claim for a regulatory taking under the Fifth Amendment or potential issue with Florida’s Bert J. Harris Act.

Avigation Easement Gap

Avigation easements, recorded instruments that convey the right of aircraft overflight across private airspace, are standard practice at commercial airports. They are rarely pursued for heliports, and almost never considered in current vertiport planning efforts.

Without an avigation easement, the vertiport operator holds no recorded right to the airspace over adjacent parcels and cannot prevent future structures from penetrating flight paths.

Inverse Condemnation Exposure

If a vertiport’s established operations effectively prevent a property owner from developing to their zoned maximum height, reducing the value of their air rights, that owner may seek inverse condemnation relief without the government or operator having formally acquired those rights.

Airspace Entitlement Analysis and Avigation Easement Assessment

VHB recommends that Orange County adopt the following **Airspace Entitlement Analysis and Avigation Easement Assessment process** to proactively address potential air rights issues associated with vertiport development. This analysis will extend beyond the current FAA requirement of existing obstacle identification to explicitly evaluate and avoid adverse impacts to the vertical development rights (air rights) of surrounding properties.

Step 1- Part 77 Surface Generation and Mapping

For each potential vertiport site, the vertiport proponent shall generate the applicable FAA Part 77 obstruction surfaces using proposed vertiport layout, orientation, and operational parameters. These surfaces shall be modeled in three dimensions and exported to GIS for spatial analysis.

- Inputs: Proposed vertiport pad elevation, runway/Final Approach and Take-Off Area (FATO) orientation, declared distances, and instrument approach procedure types (Visual Flight Rules (VFR) or Instrument Flight Rules (IFR)).
- Output: 3D GIS layer set of all Part 77 surfaces, clipped to parcel boundaries within the study area.

Step 2- Zoning Entitlement Mapping

All parcels within and immediately surrounding the Part 77 surface footprint shall be mapped against their maximum allowable heights under current Orange County zoning designations and the I-Drive CRA District land development regulations. In addition, the vertiport proponent shall review Section 38-77 Use Table of the Orange County Code to identify sensitive uses that may be incompatible with aviation operations.

This step establishes the full envelope of legally protected air rights and permitted or special exception uses, including pending or future sensitive uses, that each adjacent parcel is entitled to develop to in the future.

- Data sources: Orange County Property Appraiser parcel data; Orange County zoning and I-Drive CRA District land development regulations; Orange County airport height zoning map and GIS layers; FAA OE/AAA, ADIP/NASR, and Part 77 criteria; FDOT Aviation Office airport facility, runway, and airport protection zoning resources.
- Output: Parcel-level GIS layer with attributes for current structure height, maximum zoned height, parcel ownership, and current zoning classification. List of permitted or special exception uses, including sensitive facilities such as schools, adult and child care facilities, places of worship, and nursing facilities.

Note: Height entitlements shall include base zoning maximums plus any applicable bonus heights from density bonuses, Planned Development agreements, or special exception approvals of record.

Step 3 - Air Rights Conflict Analysis

The Part 77 surface GIS layers (Step 1) shall be intersected with the zoning entitlement layer (Step 2) to identify parcels where future buildout to the allowable maximum would penetrate one or more Part 77 surfaces. Each conflict parcel shall be classified by conflict type and severity:

- **Class 1: Approach/Departure Surface Penetration:** Most operationally critical; could limit or preclude future vertiport IFR operations, if pursued, or require procedure design changes. Current operations are anticipated to occur under visual flight conditions, meaning weather and visibility are sufficient for pilots to operate visually.
- **Class 2: Transitional or Horizontal Surface Penetration:** Operationally significant; may affect visual approach categories or traffic pattern altitudes.
- **Class 3: Conical Surface Penetration:** Lower operational impact; requires FAA notice (7460-1) if structure is built but does not preclude operations.

For each conflict parcel, the analysis shall calculate the penetration height (difference between the Part 77 surface elevation at the parcel and the maximum zoned building height), the horizontal extent of the conflict, and the estimated volume of airspace at issue.

Step 4 - Avigation Easement Boundary Definition and Cost Assessment

For all Class 1 and Class 2 conflict parcels, the vertiport proponent shall be responsible for developing recommended avigation easement boundaries and a preliminary cost assessment for easement acquisition. Avigation easements are recorded real property instruments that grant the vertiport operator (or a public entity) the perpetual right of aircraft overflight through defined airspace above a parcel and may include height restriction covenants limiting future vertical development to a specified maximum.

- **Easement boundary definition:** Legal metes and bounds descriptions of the airspace volume to be encumbered, referenced to parcel boundaries and Above Ground Level (AGL) elevations, suitable for recordation in the Orange County Official Records.
- **Preliminary valuation methodology:** Assessment of the diminution in property value attributable to the height restriction, using comparable avigation easement transactions and/or appraisal-based air rights valuation methods, for use in owner negotiations and budget planning.
- **Ownership and title review:** Identification of all fee simple owners, leaseholders, and mortgage holders of record whose consent or subordination may be required to encumber the parcel.
- **Output:** Easement Assessment memorandum per conflict parcel, for use by the vertiport proponent in evaluating project feasibility, with recommended boundary, estimated acquisition cost range, and recommended sequencing relative to vertiport permitting milestones. This assessment shall not imply County responsibility for easement acquisition, funding, or negotiation.

Step 5 - Orange County Code and Overlay Zoning Evaluation

The vertiport proponent shall evaluate existing Orange County regulatory provisions for their adequacy in protecting existing, pending, or future sensitive uses and vertiport airspace from future development conflicts and identify gaps requiring code amendment or new overlay provisions. This evaluation shall address:

- Airport height zoning (Orange County Code §§7-11 and 7-12): Assessment of whether these provisions, which require FAA 7460-1 review for structures exceeding 200 feet AGL near established airports, would extend to vertiport approach surfaces and, if so, under what conditions.
- Land use compatibility: Assessment of sensitive uses permitted by zoning classification (schools, adult and childcare facilities, places of worship, etc.), whether existing, pending, or future, are affected by noise, vibration, light, or other negative impacts and, if so, propose site specific mitigation measures.
- I-Drive CRA regulations: Review of whether I-Drive CRA height standards, setbacks, and development review processes include any provisions compatible with vertiport airspace protection, or whether new standards are warranted.
- Vertiport airspace protection overlay: Using materials provided by the vertiport proponent, Orange County shall draft the framework for a dedicated overlay district that would: (1) map the Part 77 surface footprint of approved vertiports as a recorded regulatory boundary; (2) subject development applications within that boundary to mandatory airspace compatibility review; and (3) establish a height cap tied to the applicable Part 77 surface elevation, with variance procedures requiring FAA coordination.

Step 6 - Air Rights Risk Matrix and Site Comparison

Orange County shall synthesize the outputs of Steps 1–5 into a multi-site Air Rights Risk Matrix that enables direct comparison of candidate vertiport locations based on air rights exposure. The matrix shall score each site across the following dimensions:

- Number and classification of conflict parcels (Class 1, 2, or 3)
- Estimated total aviation easement acquisition cost
- Development pipeline pressure (active building permits, entitlement applications, and market vacancy on conflict parcels)
- Regulatory adequacy of existing County code provisions
- Composite air rights risk score (Low / Moderate / High / Critical)

The risk matrix shall be presented in a decision-support format suitable for use by Orange County Planning staff, the Aviation Authority, and prospective vertiport developers in comparative site selection.

5.3 Transportation Connectivity Recommendations

Multimodal connectivity at vertiports is important for functionality as part of the broader transportation system, not as stand-alone aviation facilities. The methodology described previously assigns greater weighting to potential vertiport subareas that could be integrated with existing or planned multimodal transportation facilities. Vertiports should be planned with first/last mile connectivity in mind, to enable seamless travel from vertiport to a destination, such as a place of employment or activity center,

To further promote this connectivity during Vertiport site review and approval, it is recommended that Orange County require the following information and actions.

- i. Vertiport proponent to provide anticipated daily and annual passenger counts to frame market demand. This will help the County understand the volume of passengers on a daily or annual basis or would benefit from connectivity to other modes or destinations.
- ii. Vertiport proponent to provide traffic study / trip generation to determine impacts on existing network, such as signalization improvements, driveways, or access management improvements. This will be an important element if the vertiports primary purpose is freight, rather than passenger service.
- iii. Vertiport proponent to provide site connectivity to contiguous pedestrian and bicycle infrastructure (if existing).
- iv. If vertiport ridership analysis demonstrates adequate demand at site, the County may coordinate with LYNX during service planning for route or stop modification (if service is not already provided at the site).
- v. The County may expand its Mobility Hub program to serve vertiport sites. Mobility hubs can provide features such as bicycle lockers, water fountains, furniture, and other pedestrian and cyclist amenities.
- vi. The County may create a micromobility district to provide service around the vertiport. This may consist of an automated transit network, fixed shuttle service (similar to I-Drive Trolley, operated by a private business) or on-demand vanpool service (similar to SCOUT in Seminole County).

Because the I-Drive Overlay District (as shown on Map 2) prohibits helicopter commercial enterprises (and therefore vertiports), it is important to consider connectivity from vertiport sites outside of the Overlay to destinations within, such as the Orange County Convention Center, theme parks, I-Drive businesses, and hotels. This could include expansion of the I-Drive trolley service, tour bus operations, micromobility options, and pedicab operations.

5.4 Fire and Safety

The vertiport proponent shall submit a Fire Safety Plan and Hazardous Materials Management Plan for review by the Orange County Fire Rescue Department. These plans must identify the specific aircraft, battery technologies, charging systems, utility infrastructure, fire protection equipment,

emergency access, hazardous-material storage and handling, damaged battery isolation, shipping, recycling, and disposal procedures, and demonstrate consistency with applicable National Fire Protection Association (NFPA) standards, including but not limited to the following:

- NFPA 400 Hazardous Materials Code
- NFPA 418 Standard for Heliports and Vertiports
- NFPA 70 provisions relevant to energy storage systems (ESS) and electric vehicle charging systems
- NFPA 855 for stationary energy storage
- NFPA 110 for emergency and standby power
- 2024 International Fire Code

Please refer to **Appendix B**: Orange County AAM Framework for a detailed list of federal, state, and industry safety standards.

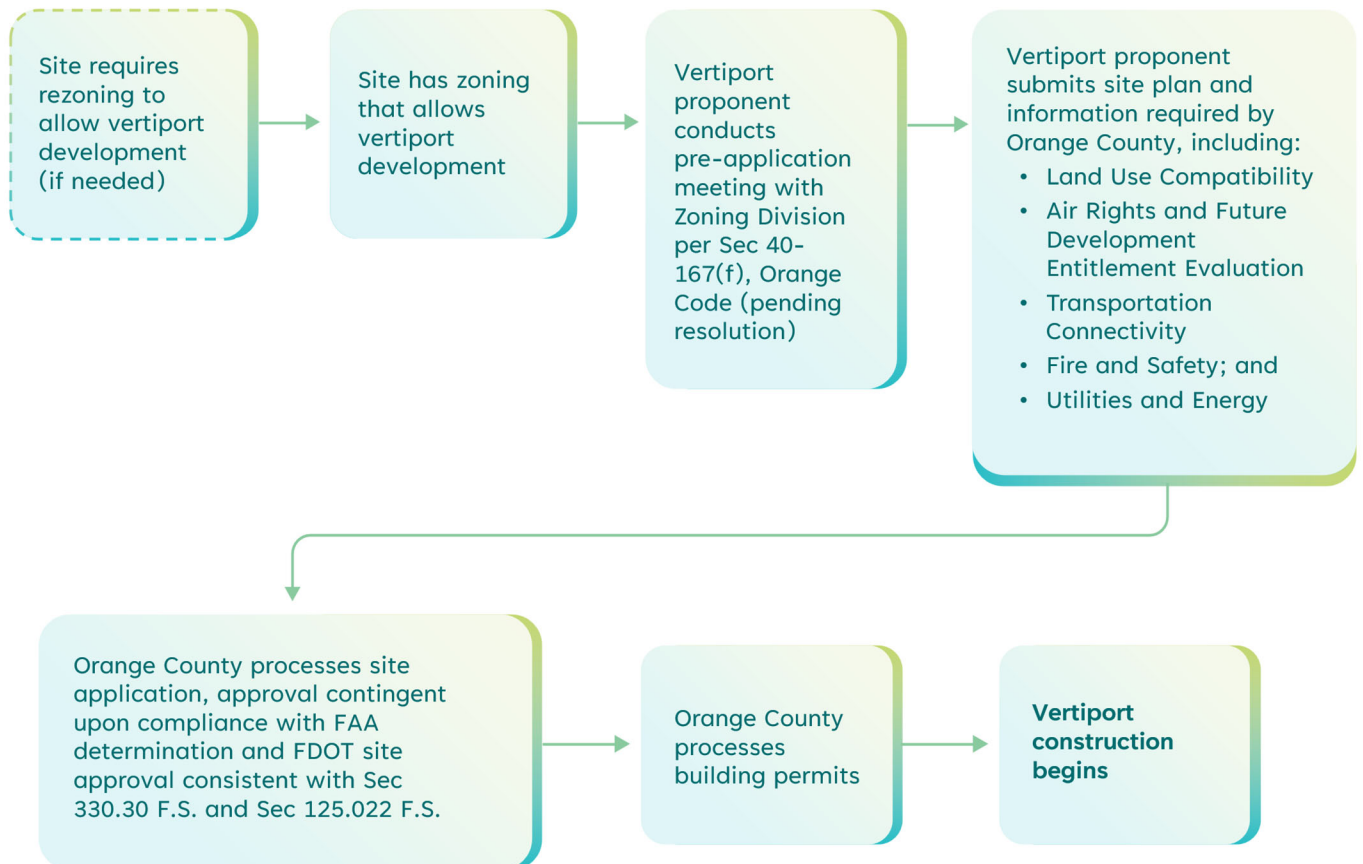
5.5 Utilities and Energy

The vertiport proponent shall submit a Utility Capacity Analysis at the time of site plan application. This report will evaluate projected electrical load, peak demand, growth scenarios, local grid capability, needed upgrades (on-site or off-site), outage resilience, emergency power needs, and feasibility of supplemental power sources including solar, storage, or microgrids. The Proponent must provide confirmation of coordination with the utility provider (Duke Energy or Orlando Utilities Commission).

Please refer to Appendix B: Orange County AAM Framework for a detailed list of federal, state, and industry energy and utility planning standards.

5.6 Development Review

The flowchart below depicts the general sequencing of potential vertiport review and approval. This process is adapted from the Florida Department of Transportation Aviation Office: Advanced Air Mobility Land Use Compatibility and Site Approval Guidebooks, September 2024. It is important to note that vertiport operations and construction cannot begin without interagency review by FAA and FDOT, pursuant to Sec. 330.30, Florida Statutes. The recommendations of this report should be discussed at the pre-application meeting and submitted with the application package.



Appendix A:

AAM Feasibility Study Methodology

Technical Memorandum

Advanced Air Mobility (AAM) Feasibility Study Methodology

Orange County, Florida

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April 2026

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Orange County AAM Feasibility Study Methodology

The purpose of this methodology is to develop an approach for reviewing the possible suitability of vertiport locations for Advanced Air Mobility (AAM) operations within Orange County. The methodology will use parcel-based data but is not intended to recommend specific sites for potential vertiport development without additional analysis, public participation, and applications from property owners. The methodology focuses on areas of Orange County regulatory control, such as land use and surface transportation. Therefore, the analysis will include unincorporated lands within Orange County and exclude incorporated municipalities and towns.

The Federal Aviation Administration (FAA) holds exclusive sovereignty over the National Airspace System (NAS), including regulation of aviation safety, air traffic, flight patterns, and airspace. Therefore, this methodology is not intended to designate “air corridors” for electric Vertical Takeoff and Landing (eVTOL) aircraft, determine flight paths, or other future AAM operational characteristics within Orange County.

Upon Orange County’s approval of the methodology, VHB will conduct a geospatial analysis to identify three (3) subareas of the County that appear most suitable for potential vertiport siting and AAM operations. Separately, VHB will prepare a methodology for the International Drive Community Redevelopment Area (I-Drive CRA), based upon the approved county-wide methodology.

Methodology Overview

The methodology will use Geographic Information Systems (GIS) analysis and data to identify parcels within Orange County that appear most suitable for potential vertiport use. Contiguous parcels will then be grouped into potential vertiport “subareas”. Suitability will be determined by the following screening criteria:

1. Land use/zoning/property rights concerns
2. Airspace
3. Environmental
4. Connectivity
5. Avoidance, minimization, and mitigation strategies
6. Other (economic development potential, synergy with partner agency projects)

Using Esri ArcGIS Online (AGOL), VHB will create an interactive web-based mapping tool that is accessible without the need to install software on a computer. Using publicly available data, the mapping tool will identify and visually display potential vertiport subareas that meet multiple screening criteria, resulting in a “heat map” with a color gradient legend. Some screening criteria, such as Airspace classifications, will be included for informational purposes only, as described further below.

Land Use/Zoning/Property Rights Concerns

Using the Land Development Code, VHB will identify parcels that meet the criteria below within unincorporated Orange County. Selected parcels that are contiguous will be grouped into “subareas” and saved in a GIS Shapefile format, becoming the basis for screening other suitability factors.

VHB will perform two analyses: one using the existing Orange County Code (in effect) zoning designations and one using the new proposed Orange Code (pending resolution) transect designations.

Orange County Code (In Effect)

Helicopter landing facilities, vertiports, and hangers (SIC Group 4581) are permitted by right within the following zoning districts:

- I-1A
- I-1, I-5
- I-2, I-3
- I-4

Helicopter landing facilities, vertiports, and hangers (SIC Group 4581) require special exception within the following zoning districts:

- A-1
- A-2

- A-R
- RCE-5
- RCE-2
- RCE
- C-1
- C-2
- C-3

Airports, airplane landing facilities, aircraft maintenance and seaplane bases (SIC Group 4581) require special exception within the following zoning districts:

- A-1
- A-2
- A-R
- RCE-5
- RCE-2
- RCE
- C-1
- C-2
- C-3
- I-1A
- I-1, I-5
- I-2, I-3
- I-4

Orange Code (Pending Resolution)

Vertiports, heliports, and Sea Plane Bases are a Permitted Use, with Additional Standards, within the following transect districts:

- LI
- HI

Vertiports, heliports, and Sea Plane Bases require a Special Exception, with Additional Standards, within the following transect districts:

- T2 Rural
- T5 Center
- T6 Urban Core

Potential vertiport subareas that allow vertiports as a Permitted By Right (Orange County Code, in effect) or Permitted Use, with Additional Standards (Orange Code, pending resolution) will be deemed as more suitable for potential vertiport development than subareas that allow vertiports as special exceptions. This will result in greater weight attributed to subareas that allow vertiports as Permitted by Right (or Permitted Use) shown on the “heat map” output of the analysis, as described in the Next Steps section of this methodology.

All other zoning designations from the Orange County Code and Orange Code will not be included in the land use analysis.

Airspace

The FAA has exclusive regulatory authority over the NAS, and Orange County does not have the ability or authority to regulate flight patterns and other aviation operations. VHB will include the following datasets in the geospatial analysis for informational purposes but will not decide suitability because regulatory approval lies with the FAA.

- Airspace Class E and G are favorable for AAM operations. Airspace Classes B, C, and D are more likely to be subject to operational restrictions by FAA and/or Florida Department of Transportation (FDOT) due to the operational environment at the airport and surrounding areas, but do not disqualify a subarea as a potentially suitable vertiport site. This layer will be included for informational purposes.
- Potential vertiport subareas generally along the I-4 Corridor, consistent with the FDOT AAM Business Plan Instrument Flight Rules (IFR) corridor. This layer will be included for informational purposes.
- Potential vertiport subareas generally aligned with the Greater Orlando Aviation Authority (GOAA) AAM Airspace and Operations Tabletop Exercise (November, 2024) depicting potential eVTOL departure and arrival routes. If data layer is available, this will be included for informational purposes.
- Flight obstructions logged with FAA. VHB will include obstacle data from FAA for the GIS analysis but will not make a determination of potential navigation barriers because flight paths from the selected sites are unknown. This layer will be included for informational purposes.
- VHB will include Code of Federal Regulations (CFR) Part 77 (Safe, Efficient Use, and Preservations of Navigable Airspace) Surfaces (primary surface, approach surface, transitional surface, horizontal surface, and conical surface) data for Orlando International Airport and Orlando Executive Airport and from Vision 2050 Comprehensive Plan Transportation Element Map 4B and 4D in the GIS analysis, but will not make a determination of selected site suitability because regulatory approval lies with the FAA. This layer will be included for informational purposes.

Environmental

Solid Waste

VHB will create a 10,000-foot buffer from landfills and solid waste facilities, pursuant to Rule 14-60.005(5)(i), Florida Administrative Code (FAC). Subareas from the land use/zoning GIS layer that overlap with the solid waste buffer will be considered not suitable for potential vertiport use and screened out of the land use layer.

Noise

Title 14 Code of Federal Regulations Part 150: Airport Noise Compatibility Planning establishes Yearly day-night average sound level (YDNL, also symbolized as L_{dn}) of 65 decibels (dBA) as the threshold of significant noise exposure for residential uses and public uses such as schools, churches, and hospitals. There is limited noise data available from OEMs at this point in the eVTOL development and certification process. In addition, the County is precluded from regulating aviation-related noise, as exempted in 15-185 (d) *Aircraft and airport activity conducted in accordance with federal laws and regulations* of the Orange County Code of Ordinances. Note that Map 4E Orlando International and Executive Airport Incompatible Use Restriction Zone Ch 333.03 F.S. noise contours Zones A, B, C restricts sensitive uses such as educational facilities. However, these same zones may be suitable for initial AAM operations. This layer will be included for informational purposes.

At this early stage of development of the AAM ecosystem, VHB will not make a determination of suitability of potential vertiport use based upon potential noise impacts to the community.

Wetlands and other environmental considerations

Other environmental impacts (such as wetland impacts, stormwater runoff, floodplain impacts and/or compensating storage, wildlife, other conservation and protected lands, etc.) will be reviewed. VHB will only review environmental impacts for identified subareas and will not make a determination of potential vertiport use suitability, unless an identified subarea lies entirely inside wetlands, floodplains, or other areas unsuitable for land development.

Connectivity

VHB will create a ½ mile buffer from the following feature classes from the Vision 2050 Comprehensive Plan (pending resolution) data and analysis.

- Map 1 2050 Long Range Transportation Plan
 - Innovation Way MMTN
 - SunRail stations (Meadow Woods and Sand Lake Road)
 - Intercity Rail Station
 - LYNX Existing/ Proposed Transit Centers
 - LYNX Park and Ride locations
- Map 1A Proximity to High-Capacity Corridor (minor/principal arterial, expressway)
- Map 2A Major Transit Trip Generators
 - More than 100 trips
 - Activity Center
- Map 2B Future LYNX Transit Routes
- Warehouse and Distribution Terminals (Florida Department of Revenue (DOR) Code 48)

If the buffer overlaps with potential vertiport subareas from the land use/zoning GIS shapefile, then the subareas will be considered potentially more suitable vertiport locations due to the potential for multimodal connectivity. The feature classes identified for Map 1 (2050 Long Range Transportation Plan) and Map 2A (Major Transit Trip Generators) will be given additional weight because they represent fixed origins and destinations, rather than travel corridors (Map 1A and Map 2B).

Other

Using information from the previous steps, VHB will use information from Orange County staff regarding potential economic and business development opportunities.

VHB will also determine if potential vertiport subareas are geographically aligned with the County's five-year Capital Improvement Program (CIP), as well as other capital projects by partner agencies for potential cost sharing or partnership opportunities:

- MetroPlan Orlando 5-year Transportation Improvement Program
- FDOT Work Program
- Central Florida Expressway Authority (CFX)
- Florida Turnpike Enterprise (FTE)
- Private industry (themed entertainment, hospitality, etc)

Potential vertiport subareas that are aligned with these criteria will be considered more suitable for vertiport locations.

International Drive Community Redevelopment Area

The International Drive area of unincorporated Orange County is one of the region's highest-intensity tourism and employment districts, anchored by theme parks, the Orange County Convention Center (OCCC), major hotels, restaurants, and entertainment venues. The area is subject to multiple layers of planning considerations, including the International Drive Community Redevelopment Area (I-Drive CRA) and the I-Drive District Overlay Zone¹. This area also includes several planned developments and is subject to unique classifications in the proposed Orange Code (pending resolution) update. The core of the district is supported by a robust surface transportation and transit network, aimed at improving multimodal connectivity and walkability. These elements create a uniquely high-demand, visitor-oriented district that is already planned around multimodal mobility, connectivity, and mixed-use development.

The I-Drive CRA and I-Drive District Overlay Zone have overlapping (but not identical) boundaries. Properties within the I-Drive Overlay District are subject to the I-Drive District Overlay Zone Code standards. Properties within the I-Drive CRA (but are not within the I-Drive District Overlay) are currently subject to the existing Orange County Code.

The successful integration of Advanced Air Mobility into this district would mean treating AAM as a link in the multimodal system, rather than a standalone mode. In addition to the uses permitted by the Orange County Code zoning districts, the Comprehensive Plan, I-Drive District Overlay and I-Drive Redevelopment Plan offer additional policies for multimodal transportation, activity centers, and economic development.

¹ The I-Drive District Overlay Zone will be formally renamed the "**I-Drive District Code**" upon the pending effective date of Vision 2050, Orange Code, and other related code updates to existing Orange County Code Chapters. This change reflects that although originally adopted in 1997 as an overlay, the district regulations became fully applicable to most properties within the I-Drive District as of February 7, 2022. The only exception is for vested Planned Developments (PDs) and any portions of those PDs with active Development Plans (DPs) or Preliminary Subdivision Plans (PSPs).

In addition to the screening criteria described previously in the methodology, the project team will examine these factors that are specific to the I-Drive CRA.

I-Drive Land Development Code

The I-Drive CRA land use analysis uses the same process as the Countywide AAM methodology to identify parcels that allow vertiport use either as by-right or permitted by special exception. Notably, this would include the Orange Code (pending resolution) Transects for T6 General, T6 I-Drive, and T6 Universal, which are only found within the I-Drive CRA, and represent the most intense areas of development within Orange County.

VHB will create a ½ mile buffer around the additional land use classifications.

- Orange Code (Pending Resolution)²
 - Special Zone Theme Park (SZ Theme Park)
 - Special Zone Civic (SZ Civic)

While these transects do not allow vertiports as a permitted use, multiple goals and policies from the Orange County Comprehensive Plan, I-Drive Overlay District, and I-Drive Redevelopment Plan promote mixed use development, multimodal connectivity, walkability, placemaking and urban form. The integration of AAM operations in near proximity would potentially enhance mobility and property value, aligned with the planning policies and the overall economic development vision of the I-Drive CRA. Identified subareas that are located within the SZ Theme Park and SZ Civic buffer will be considered more suitable for potential vertiport development due to the dense urban development character and compatibility with high intensity land uses.

The I-Drive District Overlay prohibits “helicopter commercial enterprises (heli-tours or similar uses). Therefore, all parcels within the I-Drive District Overlay will be excluded from the analysis and considered not suitable for vertiport use.

Potential to Enhance Convention and Tourist Visitation

This section identifies existing sites that could benefit from enhanced mobility for convention-related and tourism visitors. VHB will draw a ½ mile buffer around the following sites. Identified subareas that overlap with the buffers will be considered more potentially suitable for potential vertiport development.

- Orange County Convention Center (OCCC): This facility is a primary demand generator within the I-Drive CRA. In FY 2024–2025, the OCCC hosted over 183 events with approximately 2 million total attendees, generating an estimated \$4.8 billion in annual economic impact and supporting over 28,000 jobs tied to convention center activity. The OCCC’s existing helipad and its role as the second-largest convention center in the United States position it as a potential anchor location for vertiport infrastructure within the CRA. The OCCC is undergoing

² Upon Vision 2050 and the Orange Code becoming effective, all conventionally zoned properties within the I-Drive CRA (excluding any vested PDs, DPs, and PSPs) will transition to the Orange Code Transect Zone standards. Properties within the I-Drive District Overlay will continue to be governed by the I-Drive District Code (not the existing Orange County Code, nor the new Orange Code).

its Phase 5 expansion and proposed vertiports must carefully consider the facility's operations and expansion needs, including parking.

- **SeaWorld Orlando:** This theme park hosted over 4 million annual visitors in 2024, and is one of the most visited theme parks in the Country. There are three separate parks: SeaWorld Orlando, a marine life theme park with thrill rides; Aquatica Orlando, a water park; and Discovery Cove, a day resort with unique marine life experiences. Aquatica is separated from the other two parks by International Drive. This theme park is located within the SZ Theme Park Overlay District, as described in the Land Development Code section previously.
- **Universal Epic Universe:** This new theme park opened in May 2025 and is anticipated to host 7.3 annual visitors. The Shingle Creek Transit and Utility Community Development District recently selected the Boring Company to build an underground tunnel to connect Epic Universe to the main Universal Studios Resort Area. While this subsurface transportation project is under development, integration of AAM operations may become an attractive part of the guest experience. This theme park is located within the SZ Theme Park Overlay District, as described in the Land Development Code section previously.

Other Unique Land Use Considerations

This section identifies alignment with the adopted Orange County Code, the BCC-adopted CRA plan and International Drive Business Improvement District plans. Potential locations for vertiport development within the I-Drive CRA may include these public sites:

- The I-Drive 2040 Visioning Book envisions a 12-acre Transit Oriented Development (TOD) site on Orange County property in Sub-District 1, between SR 528 and Destination Parkway, south of the Hilton Orlando Hotel. An Orange County Parking Garage located at 5980 Destination Parkway currently exists on this site, adjacent to the Lynx Destination Parkway Super Stop and a large surface parking lot. This area currently has C-2 zoning and could be considered as a potential vertiport site, adding another form of mobility to an identified development site.
- The I-Drive 2040 Visioning Book identifies a development parcel on a 28-acre Orange County property in Sub-District 4. This site is located south of SR 528 and east of International Drive, adjacent to a water treatment facility and an electrical substation. Aquatica Orlando water park is located to the south, and the Williamsburg single family residential neighborhood are located to the east. The Visioning Book anticipates a mixed use master plan, including residential, big box retail, office, institutional, and parking. The integration of AAM could further activate this site as a multimodal hub, provided that it does not cause negative impacts to adjacent land uses. The site currently has PD zoning, so a rezoning application would be required.

I-Drive Transportation Integration Considerations

Specific transportation considerations for the International Drive area may include operations of micromobility, pedicabs, the I-Ride Trolley system, tour buses, freight and goods movement, and County/regional plans for transit.

In addition to connectivity considerations already identified in the Countywide methodology, VHB will create a ½ mile buffer from the following existing transportation nodes within the I-Drive CRA.

- Lynx Super Stop (Destination Parkway)
- I-Ride Trolley stops
- Micromobility corrals.

If the buffer overlaps with potential vertiport subareas from the land use/zoning GIS shapefile, then the subareas will be considered potentially more suitable vertiport locations due to the potential for multimodal connectivity.

Avoidance, Minimization, and Mitigation Strategies

The following strategies should be considered during site selection and vertiport permitting within the I-Drive CRA to reduce the likelihood of adverse impacts of AAM on adjacent uses and residents.

- Policy ID5.1.1 of the I-Drive Element states *“Buffer techniques and varied development densities and intensities shall be employed to ensure land use compatibility and provide transitional land use activities within and adjacent to the International Drive Activity Center consistent with the objective.”* Consistent with this Policy, the County should ask vertiport proponents to describe how AAM operations will be buffered from existing uses, such as residential, schools, and parks. In addition, the proponent should demonstrate the effectiveness of the proposed method of buffering through comparative video footage, three dimensional modeling, or other data that allows the County to evaluate the proposed buffering method.
- Policy ID5.1.3 of the I-Drive Element states *“The International Drive Activity Center Development Guidelines shall include effective land use buffering regulations to provide for the protection of the Lake Willis single family homes.”* Consistent with this Policy, the County should ask vertiport proponents to describe any potential impacts to these residences resulting from anticipated AAM operations. If negative impacts are anticipated, the proponent should describe strategies for mitigation.
- Tangelo Park is located immediately adjacent to C-2 zoning, which permits vertiports as a special exception. If a private vertiport is proposed in this location, County authorities should require visual buffering, community engagement, noise modeling studies, and other mitigation strategies as potential conditions of approval.
- SeaWorld Orlando is home to many different forms of animals and marine life. If a private vertiport is proposed in near proximity, County authorities should require the proponent to coordinate with SeaWorld and the FAA to determine potential impacts of AAM operations on animal health and develop mitigation strategies.

Summary and Next Steps

Upon approval of the methodology, VHB will perform the geospatial analysis. Subareas that meet multiple screening criteria will be considered to appear more suitable for potential vertiport locations than areas that do not meet screening criteria. VHB will develop a color gradient legend to differentiate subareas that meet multiple screening criteria, which will result in a “heat map” of

potential vertiport subareas that appear more suitable (meeting more criteria) and appear less suitable (meeting fewer criteria).

VHB and the County will review the heat map output to select up to three optimal locations for AAM development and operations. The prevalence of adjacent existing residential and/or school uses will be a consideration in determining the selection of the three optimal locations.

Avoidance, Minimization, and Mitigation Strategies

Orange County's land use regulatory authority has the greatest impact on this methodology and future vertiport locations, as airspace and other federal aviation preemptions limit the County's ability to affect aviation operations and potential community impacts.

Potential strategies to limit adverse impacts on communities include the following:

- Amend the zoning district table (Table 8: Permitted Uses of Sec 38-77 of the Orange County Code (in effect); or Table 9: Permitted Uses by Zone of the Orange Code (pending resolution)) to require a special exception of all vertiports, rather than a permitted by-right use. This would allow the County to require additional analysis and public hearings.
- Amend the land development code to require a 500 to 1,000 foot buffer between a proposed vertiport and an existing sensitive use, such as a church, library, school, or nursing home. While the State of Florida and 14 CFR Part 150 do not establish specific buffer distances, local governments can establish local land use compatibility standards.
- Require public meetings for all potential vertiport projects. All residents, property owners, and stakeholders within 1,000 feet of a proposed vertiport should be notified.
- At the time of vertiport application, coordinate with the FAA and FDOT to recommend that proposed flight paths avoid existing residential uses, to the extent practicable. The FAA will have final approval authority of airspace related matters.

Appendix B:

Orange County AAM Framework Technical Memorandum

Advanced Air Mobility (AAM) Feasibility Study

Orange County, Florida

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Orange County AAM Framework

The purpose of this document is to provide a high-level overview of the established policy and planning framework guiding Advanced Air Mobility (AAM) integration in Orange County.

The Florida Department of Transportation (FDOT) describes Advanced Air Mobility (AAM) as a revolutionary approach to air transportation that expands aviation beyond traditional roles, enabling efficient movement of people and goods in urban, suburban, and rural areas. AAM leverages cutting-edge aircraft technology to create new multi-modal solutions that integrate seamlessly with existing transportation systems. AAM encompasses various aircraft types, including electric vertical takeoff and landing (eVTOL) aircraft, which are designed for shorter-distance travel and enhanced accessibility. With advancements in energy power systems, aerospace and manufacturing technologies, and artificial intelligence, AAM is positioned to revolutionize how people and goods travel, making aviation more connected, efficient, and integrated into everyday life. Two major uses would be passenger transportation and urban freight delivery. Passenger transportation through AAM will help enable faster commutes and provide new mobility options with additional modality integration opportunities, while urban freight delivery will provide enhanced logistic solutions for cargo and emergency services. AAM aims to supplement and enhance the existing transportation network, creating opportunities for improved connectivity and efficiency. Governments, industry leaders, and regulatory agencies are working together to ensure AAM is developed safely and effectively. As AAM matures, its successful integration will hinge on proactive planning, stakeholder engagement, strategic infrastructure, and adaptive policy development to maximize connectedness, community benefit, and operational excellence.

The evolving federal and state AAM regulatory landscape presents both strategic opportunities and operational challenges for Orange County and regional stakeholders. To support AAM readiness, the County aims to anticipate and plan for potential sites for vertiport development, providing compatibility with Federal Aviation Administration (FAA) design standards and integration with existing multimodal transportation networks. Early coordination with FAA, regional air traffic control, and the FDOT will be essential to safely integrate AAM operations into both controlled and uncontrolled airspace, particularly near airports and high-density corridors.

Community engagement will also play a critical role in addressing public concerns related to noise, safety, and accessibility. AAM stakeholders (i.e., vehicle operators, airport operators, and local elected officials) will need to facilitate meaningful community involvement by effectively engaging communities, encouraging information exchange, and soliciting community viewpoints early in the process before decisions affecting those communities are made. Additionally, operational readiness will require the development of new protocols, training programs, and emergency response procedures tailored to powered-lift aircraft and vertiport environments.

In addition, partnerships with Original Equipment Manufacturers (OEMs), technology providers, and academic institutions will be key to piloting early AAM services, testing infrastructure concepts, and positioning Orange County as a national leader in AAM innovation. By aligning local planning efforts with federal and state laws, rules, regulations, and planning guidance documents, Orange County can be well-prepared to support the next generation of aviation mobility.

1. Federal Regulations, Policies, and Guidance

The advancement of AAM and vertiport infrastructure in the United States is being guided by a dynamic federal framework of policy, technical standards, and planning guidance. This framework is primarily shaped by the FAA and the National Aeronautics and Space Administration (NASA), which are working to establish the regulatory and operational foundations necessary for the safe integration of eVTOL aircraft into the National Airspace System (NAS).

Key federal enablers and constraints influencing AAM deployment include safety certification requirements, airspace integration protocols, and noise compliance standards. The FAA plays a central role, working closely with OEMs, airports, and local governments to ensure that emerging AAM technologies and operations align with national aviation safety and infrastructure goals. This section outlines the foundational guidance documents shaping AAM implementation and identifies implications for Orange County's readiness to support future AAM operations.

1.1 Key Guidance Documents

1.1.1 FAA Urban Air Mobility Concept of Operations v2.0 (2023)

The Urban Air Mobility (UAM) Concept of Operations (ConOps) addresses UAM as a subset of AAM to document the parameters needed to help UAM integrate into the national airspace, align with the transportation network, and advance to operational maturity via appropriate research, coordination, and planning. The ConOps recommends local governments like Orange County actively plan for UAM vertiports to promote community planning and involvement, provide for market choice, and address local demand for this transportation option. To do so, the ConOps notes local governments could:

- Plan appropriate UAM facilities to accommodate growth projected in FAA evaluated forecasts;
- Integrate UAM into surface transportation, especially for cargo operations;
- Provide zoning standards that protect airspace in and around vertiports and vertistops;
- Incorporate UAM in local and regional infrastructure planning for transportation and utilities; and
- Engage the community and connect UAM to larger transportation planning efforts.

The ConOps also states that identified UAM Corridors are key to safe and efficient UAM operations that accommodate increasing frequency of operations to meet demand and affirms that UAM Corridor design considerations should include local environmental and noise, safety, security, and other stakeholder concerns (p. 16-17).

1.1.2 FAA AAM Implementation Plan (2023)

The FAA created the AAM Implementation Plan (Plan) to document the Innovate28 (I28) initiative that encourages joint government and industry planning for integrated AAM operations at one or more key locations in the U.S. by the year 2028. The Plan also outlined actions that are needed for a longer-term maturity of AAM concepts, operations, and regulations beyond those initial operations. The Plan promotes coordination between agencies that has been seen in the Greater Orlando Aviation Authority’s (GOAAs) tabletop exercises and other extensive coordination with NASA and the FAA that have advanced Central Florida’s prospects for future AAM development. However, the year 2028 timeline has been accelerated by Executive Order 14307 (June 6, 2025) creating the eVTOL Integration Pilot Program (eIPP) for the approval of at least 5 U.S. sites operating in 2026.

The Plan notes local zoning ordinances may need updating for vertiports not co-located with existing airports, but that FAA engagement with communities may be limited if no federal funding is provided. The Plan also encourages communities “to plan for vertiports capable of accommodating multiple operators that will benefit passengers. They should also plan for equitable, multimodal placement of vertiports to connect transportation systems without creating new sources of traffic congestion and parking concerns whenever possible” (p. 23). These provisions are addressed, in part, by Orange Code’s development standards.

Table 1 contains a summary of key FAA and NASA guidance documents.

Table 1 Key FAA and NASA Guidance Documents Summary

Document	Summary	Relevance
FAA Urban Air Mobility (UAM) Concept of Operations 2.0 ¹	Provides a phased roadmap for integrating UAM into the NAS, including initial, midterm, and mature stages. Emphasizes safety, automation, and scalable urban operations via UAM corridors and Extensible Traffic Management (xTM).	Offers foundational planning structure for phased AAM deployment. Supports corridor-based integration, which is relevant for high-density areas.
Innovate28 Implementation Plan (2023) ²	FAA’s strategic plan to enable AAM operations at scale by 2028. Covers aircraft/pilot certification, airspace management, vertiport infrastructure, and community engagement. Targets readiness for major events like the 2028 Olympics.	Provides a roadmap for aligning local infrastructure, airspace management, and public safety operations with federal standards. It supports regional efforts to develop vertiports, engage communities, and coordinate with agencies like FDOT and NASA.
NASA Electric Vertical Takeoff and Landing Aircraft Technology for Public Services – A White Paper ³	Explores AAM use cases in emergencies and public services. Highlights benefits, challenges, and future research needs for safe deployment in public-sector missions.	Highlights how AAM can improve emergency response, disaster relief, and public safety operations—critical in a region vulnerable to hurricanes and flooding.

Source:

Document	Summary	Relevance
1	FAA. Urban Air Mobility (UAM) Concept of Operations 2.0. April 26, 2023. Accessed October 28, 2025. https://www.faa.gov/sites/faa.gov/files/Urban%20Air%20Mobility%20%28UAM%29%20Concept%20of%20Operations%202.0_0.pdf	
2	FAA. Innovate28 Implementation Plan. July 2023. Accessed October 28, 2025. https://www.faa.gov/sites/faa.gov/files/AAM-I28-Implementation-Plan.pdf	
3	NASA. Advanced Air Mobility (AAM) Ecosystem Working Groups White Paper. August 20, 2021. Accessed October 28, 2025. https://ntrs.nasa.gov/api/citations/20205000636/downloads/2021-08-20-eVTOL-White-Paper-Final_V48.pdf	

1.2 Land Use Compatibility and Environmental Compliance

Certain characteristics of a site may inherently deem it incompatible for aeronautical activities, or make it generally not recommended to build an airport or airspace over. FAA resources on compatible land uses should be reviewed to build an understanding of potential hazards that could be barriers for AAM implementation. Proponents should evaluate the site against the core characteristics of compatibility: aviation noise, airspace, visual or atmospheric interference, wildlife, protection of people and property, and development density.

FAA Advisory Circulars (ACs) and related regulatory guidance offer important technical references for identifying airport-compatible land uses during the planning, design, and implementation phases. However, the FAA’s role in land use planning is primarily advisory and does not supersede the authority of regional, state, local, or airport-specific regulations. These local and state-level provisions ultimately govern land use decisions and will take precedence in determining compatibility and permitting outcomes. Table 2 contains a summary of relevant land use compatibility and environmental compliance documents.

Table 2 Land Use Compatibility and Environmental Documents

Document	Summary	Relevance
FAA AC 150/5190-4B, Land Use Compatibility ⁴	Provides guidance for evaluating land use compatibility around airports. It outlines six core characteristics to assess compatibility: safety, noise, airspace protection, electronic interference, visual and atmospheric effects, and wildlife hazards. It also offers tools and techniques for local governments and airport sponsors to protect communities and airport operations.	Provides land use framework and compatibility for integrating vertiports and AAM facilities into existing land use plans while minimizing conflicts with surrounding development. Ensures zoning decisions account for safety, noise, and wildlife hazards, which is critical given Orange County’s dense urban growth and proximity to local airports.

Document	Summary	Relevance
14 CFR Part 150- Airport Noise Compatibility Planning ⁵	This part prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs.	Supports proactive noise management strategies for AAM operations near residential and tourist areas. Orange County's high population density and tourism-driven economy make noise compatibility essential to maintain community acceptance and protect quality of life.
ACRP Report 15, Aircraft Noise ⁶	A Toolkit for Managing Community Expectations: Examines practices that characterize an effective communications program and provides basic information about noise and its abatement to assist in responding to public inquiries.	Provides communication tools to address public concerns about AAM noise impacts. With Orange County's diverse communities and strong tourism presence, transparent engagement will be key to building trust and reducing stakeholder opposition to vertiport siting.
14 Code of Federal Regulation (CFR) Part 77, Safe, Efficient Use and Preservation of Navigable Airspace ⁷	Establishes standards for determining and defining objects that may pose potential obstructions to air navigation.	Requires that new AAM infrastructure does not create airspace obstructions, especially near airports. Compliance is vital for maintaining safe integration of AAM corridors in a congested airspace environment.
ACRP Report 108, Guidebook for Energy Facilities Compatibility with Airports and Airspace ⁸	Includes research findings on visual, atmospheric, and electronic interference. Electronic interference is a compatible land use consideration and includes high-energy use, production or transmission facilities, or installations on an institutional, commercial, or industrial property that may affect navigational aids (NAVAIDs).	Addresses potential interference from high-energy facilities near vertiports. As developers explore electrification for AAM, this guidance helps prevent conflicts between charging infrastructure and navigational aids, supporting safe and reliable operations.

Document	Summary	Relevance
<p>FAA AC 150/5200-33C, Hazardous Wildlife Attractants on or Near Airports⁹</p>	<p>Provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports.</p>	<p>Critical for siting vertiports away from land uses that attract birds or other wildlife, reducing strike risks. Orange County's mix of environmental assets such as Green Park Land Acquisition for Conservation & Environmental Protection (PLACE) properties and wetlands, and urban development makes wildlife hazard mitigation a priority for AAM safety.</p>
<p>Day-Night Average Sound Level (DNL)¹⁰</p>	<p>FAA has adopted DNL 65 decibels (dBA) as the threshold of significant noise exposure, below which residential land uses are compatible. While DNL is the primary metric FAA uses to determine noise impacts, FAA accepts the Community Noise Equivalent Level (CNEL) in California as California adopted the use of CNEL prior to FAA adopting DNL. While CNEL, like DNL, adds a ten times weighting (equivalent to a 10 dBA "penalty") to each aircraft operation between 10:00 p.m. and 7:00 a.m., CNEL also adds a three times weighting (equivalent to a 4.77 dBA penalty) for each aircraft operation during evening hours (7:00 p.m. to 10:00 p.m.).</p>	<p>Provides a standardized metric for evaluating AAM noise impacts on residential areas. Applying both the County's Airport Noise Standards and FAA DNL thresholds ensures developers can balance vertiport placement with community noise sensitivity, especially near tourist districts and residential neighborhoods.</p>

Document	Summary	Relevance
Order 1050.1G - FAA National Environmental Policy Act Implementing Procedures ¹¹	The purpose of this is to integrate the National Environmental Policy Act (NEPA) into FAA’s decision-making processes. Specifically, the procedures: describe the process by which FAA determines, based on its statutory authorities and Congressional statements of purpose and policy, e.g. safety, efficiency, and minimizing effects of aviation activity on people and the environment, what actions are subject to NEPA’s procedural requirements and the applicable level of NEPA review.	Guides Federal environmental review for AAM projects, ensuring compliance with federal requirements. This is used to address potential impacts on wetlands, wildlife habitats, and noise-sensitive areas during vertiport development. Some on-airport vertiport facilities may qualify for a categorical exclusion (CATEX) under FAA Order 1050.1G, meaning they would not require public notice or a formal environmental review. However, off-airport vertiport facilities are more likely to require an Environmental Assessment (EA) or, in some cases, an Environmental Impact Statement (EIS). For these projects, a Federal Register notice and outreach would occur during the NEPA process to impacted parties. This outreach would include opportunities for public review and comment.

Source:

- 4 FAA. AC 150/5190-4B, Airport Land Use Compatibility Planning. September 16, 2022. Accessed October 28, 2025. https://www.faa.gov/documentLibrary/media/Advisory_Circular/150_5190_4b_Land_Use_Compatibility.pdf
- 5 FAA. 14 CFR Part 150, Airport Noise Compatibility Planning. Originally published December 18, 1984; current version accessed October 28, 2025. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150>
- 6 Transportation Research Board (TRB). ACRP Report 15, Aircraft Noise: A Toolkit for Managing Community Expectations. 2009. Accessed October 28, 2025. <https://nap.nationalacademies.org/catalog/14338/aircraft-noise-a-toolkit-for-managing-community-expectations>
- 7 FAA. 14 CFR Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace. July 21, 2010. Accessed October 28, 2025. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-E/part-77>
- 8 Transportation Research Board (TRB). ACRP Report 108, Guidebook for Energy Facilities Compatibility with Airports and Airspace. April 25, 2014. Accessed October 28, 2025. <https://nap.nationalacademies.org/catalog/22399/guidebook-for-energy-facilities-compatibility-with-airports-and-airspace>
- 9 FAA. AC 150/5200-33C, Hazardous Wildlife Attractants on or Near Airports. February 21, 2020. Accessed October 28, 2025. https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5200-33C.pdf
- 10 FAA. 14 CFR Part 150, Airport Noise Compatibility Planning. Originally published December 18, 1984; current version accessed October 28, 2025. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150>
- 11 FAA. Order 1050.1G, Environmental Impacts: Policies and Procedures. July 16, 2020. Accessed October 28, 2025. https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050.1G.pdf

Together, these resources provide a comprehensive framework for evaluating site compatibility in support of AAM infrastructure development. Proponents should incorporate these considerations early in the planning process to avoid costly conflicts and ensure alignment with federal, state, and local expectations.

1.3 FAA Planning and Airspace Approval Process

The integration of AAM operations into the NAS requires a coordinated approach to low-altitude airspace management, digital infrastructure, and regulatory oversight. Central to this integration are the evolving frameworks for Provider of Services for UAM (PSU), UAS Service Suppliers (USS), and the broader Uncrewed Traffic Management (UTM) architecture. These systems are designed to enable safe, scalable, and interoperable operations of eVTOL aircraft in urban and suburban environments, particularly below 400 feet Above Ground Level (AGL) where traditional air traffic control services are limited or unavailable.

The FAA's UTM ConOps Version 2.0, released in March 2020, and subsequent updates through the FAA UTM Implementation Plan (2022), outline the foundational roles of PSUs and USSs in managing flight planning, strategic deconfliction, conformance monitoring, and real-time data exchange. These service providers are expected to operate within a federated architecture, where multiple PSUs/USSs coordinate with each other and with FAA systems to ensure situational awareness and airspace safety. As of 2025, the FAA continues to refine its regulatory framework for UAM integration through initiatives such as the UAM Corridors Concept and the I28 campaign, which targets initial AAM operations in key markets by 2028.

For planning purposes, it is essential to identify and map the airspace volumes that will be affected by AAM operations, including controlled airspace (Classes B, C, D), uncontrolled Class G airspace, and special use airspace (SUA). FAA evaluation of vertiport siting will account for vertical and lateral separation requirements, approach and departure corridors, and potential conflicts with existing Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) traffic.

Digital infrastructure is equally critical. PSU and USS operations depend on robust data exchange networks, including surveillance feeds (e.g., ADS-B, RID), weather data, NOTAMs, and command-and-control (C2) communications. The ASTM F3548 standard for Remote ID and the ASTM F3411 standard for USS interoperability provide technical guidance for system design and integration. Mapping efforts by vertiport proponents should include identification of existing telecommunications infrastructure (e.g., 5G towers, fiber backhaul), PSU/USS service coverage zones, and latency thresholds for time-critical operations.

In the early planning phase, before filing any official forms for airspace determination, it is highly recommended that vertiport proponents coordinate with the FAA, local airports, and other impacted agencies and communities. Proponents may use the FAA Notice Criteria Tool to assess whether the proposed site location and characteristics obstruct Part 77 imaginary surfaces or potentially interfere with frequencies, both of which could affect the safe and efficient use of airspace. If the site infringes on Part 77 surfaces, further aeronautical studies and coordination with the FAA may be required. Other incompatible land uses (such as residential use within airport noise contours, airspace obstructions and hazards to safe navigation, land uses that attract birds and other wildlife hazards, and land uses with concentrations of people or property within airport runway protection zones) should also be evaluated by the vertiport proponent prior to submitting permits.

To prepare for permit submittal, proponents should gather supporting materials for the planned vertiport. In the design phase, these materials and studies will be needed for FAA airspace determination. For public or private vertiports not located on airport property or on a non-federally obligated airport, the FAA requires submission of Form 7480-1, Notice for Construction, Alteration and Deactivation of Airports, at least 90 days before construction, alteration,

activation, or change of status. This form initiates an aeronautical study by the FAA, which may result in one of three outcomes: no objection, no objection with conditions, or objectionable.

If the vertiport is located on a federally obligated airport, its infrastructure and equipment must be depicted on the Airport Layout Plan (ALP), and Form 7460-1 must be submitted for FAA airspace determination prior to development and operation. Orange County's regulatory jurisdiction would be limited to land use and zoning outside FAA-controlled airspace, not the airspace or off-site approach and departure corridors. The FAA's Office of Airports (ARP) will also review the ALP¹² under the NEPA and may issue one of the following responses:

- Conditional ALP approval – Environmental review not yet completed; construction not authorized until analysis is finalized.
- Unconditional ALP approval – Environmental review completed; construction may proceed.
- Mixed ALP approval – Partial project approval with conditional approval for long-term development not yet ready for decision.

Note that approval of an ALP also indicates that the FAA finds the proposed development safe and efficient. Projects on federally obligated airports are likely to be classified as categorical exclusions (CEs) under the NEPA review process, meaning that a formal environmental assessment (EA) or environmental impact statement (EIS) and public notice and review would not be required. Therefore, Orange County would be unlikely to have a formal review role in this process.

During the review process, both on- and off-airport development may require additional correspondence with the FAA, requests for further information, public comments, and more. Findings may lead to updates in plans and designs, additional environmental assessments, or denial of airspace permits due to unsafe or inefficient conditions.

Once approved, vertiports that are not located on airport property or on a non-federally obligated airport must be activated through the FAA's Airport Data and Information Portal (ADIP). Instead of submitting paper forms, project proponents now complete the activation process electronically by initiating an Airport Master Record (AMR) project in ADIP. This process replaces the previous requirement to submit blank FAA Form 5010-3 (for public-use landing areas) or FAA Form 5010-5 (for private-use landing areas). Project proponents enter detailed facility information such as location, runway or landing area specifications, and operational data directly into ADIP to ensure accurate inclusion in the FAA's airport database and compliance with activation requirements. The FAA or state airport inspector will inspect the site for accuracy, revise and resubmit the form as needed. FAA's Airport Engineering Division (AAS-100) will verify the form, assign a site number, and forward the information to the Air Traffic Organization (ATO) for entry into the NAS with a permanent location identifier.

Table 3 contains a summary of airspace approval procedures and regulations. Table 4 contains a summary of on-airport master planning procedures.

¹² FAA. ALP Approval Preliminary Instructions. July 12, 2024. Accessed October 28, 2025.
https://www.faa.gov/airports/planning_capacity/alp-approval-preliminary-instructions

Table 3 **Airspace approval procedures**

Document	Summary	Relevance
FAA Notice Criteria Tool ¹³	Allows users (airport sponsor, developer, and local government) to input location and dimensional information about a proposed development off-airport to determine if they are required to file notice with FAA.	Allows planners and developers to quickly assess whether proposed vertiport structures or high-rise developments require FAA notification.
14 CFR Part 157, Notice of Construction, Alteration, Activation, and Deactivation of Airports ¹⁴	This regulation specifies when notice must be filed with the FAA for constructing, altering, activating, or deactivating a civil or joint-use airport, including changes to its status or use. It establishes procedures for submitting FAA Form 7480-1 at least 90 days before the proposed action and defines key terms such as public-use and private-use airports. The notice enables the FAA to evaluate the impact on airspace safety, traffic patterns, and ground safety, ensuring compliance with federal requirements.	Requires FAA review of new vertiports or modifications to existing facilities. This is critical to maintain airspace safety and integrate AAM infrastructure without disrupting existing airport operations or traffic patterns.
FAA Form 7480-1 ¹⁵	Form for airspace determination off-federally obligated airports. Used to notify the FAA of proposed airport construction, alteration, or deactivation. The form initiates an airspace review to ensure safety and compliance with Part 157 requirements.	Serves as the formal mechanism to notify FAA of vertiport construction or activation. Filing this form early helps avoid delays and ensures compliance with federal airspace safety requirements for AAM projects. This is the second required step to establish a new airport, heliport, or seaplane base in the State of Florida, following confirmation of appropriate Orange County zoning ¹⁶
FAA's Airport Data and Information Portal (ADIP) ¹⁷	System for intake to activate a new public-use landing area. Required to activate a new public-use landing area. It collects detailed airport data such as location, runway specifications, and operational information for inclusion in the FAA's Airport Master Record system.	Required for activating new public-use vertiports. Accurate data entry into ADIP ensures AAM facilities are included in FAA's master records, supporting integration into national airspace and flight planning systems.

Document	Summary	Relevance
FAA ASPM ¹⁸	A data system maintained by the FAA that tracks operational performance at major U.S. airports. It includes metrics such as delays, throughput, and capacity, which help analyze air traffic efficiency and forecast demand. For AAM planning, ASPM data can inform how vertiports integrate with existing airport operations.	Provides operational performance data that can inform AAM demand forecasting and vertiport capacity planning. This helps to guide AAM development with regional air traffic trends.
Bureau of Transportation Statistics (BTS) ¹⁹	A federal data source providing comprehensive transportation statistics across all modes, including aviation. It covers passenger volumes, travel patterns, and economic indicators.	Offers transportation and mobility data that can support AAM market analysis and integration with multimodal planning. Proponents can use BTS data to identify travel patterns and prioritize vertiport locations near high-demand corridors.
FAA Form 7460-1 Notice of Proposed Construction or Alteration ²⁰	Information to be submitted through Obstruction Evaluation (OE)/Airport Airspace Analysis (AAA) portal is required to initiate an airspace evaluation for on-airport cases.	Required for structures that may affect airspace, including vertiports and their supporting infrastructure. Filing through the OE/AAA portal ensures potential obstructions and maintains compliance with Part 77 for safe AAM operations.

Source:

- 13 FAA. FAA Notice Criteria Tool. Accessed October 28, 2025. <https://oeaaa.faa.gov/oeaaa/oe3a/main/#/noticePrescreen>
- 14 FAA. 14 CFR Part 157, Notice of Construction, Alteration, Activation, and Deactivation of Airports. July 24, 1991. Accessed October 28, 2025. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-157>
- 15 FAA. FAA Form 7480-1, Notice for Construction, Alteration, and Deactivation of Airports. July 1, 2020. Accessed October 28, 2025. <https://www.faa.gov/documentLibrary/media/Form/faa-form-7480-1-notice-for-construction-2020.pdf>
- 16 FDOT, Establishing a New Airport, Heliport, or Seaplane Base. Accessed November 14, 2025. <https://www.fdot.gov/aviation/establishinganewairportheliportorseaplanebase>
- 17 FAA. Airport Data and Information Portal (ADIP). Accessed October 28, 2025. <https://adip.faa.gov/agis/public/#/public>
- 18 FAA. ASPM portal. <https://www.aspm.faa.gov/>
- 19 Bureau of Transportation Statistics (BTS). Accessed October 28, 2025. <https://www.bts.gov/>
- 20 FAA. OE/AAA portal. Accessed October 28, 2025. <https://oeaaa.faa.gov/oeaaa/oe3a/main/#/home>

Table 4 On-airport Resources

Document	Summary	Relevance
FAA Notice Criteria Tool	Allows users (airport sponsor, developer, and local government) to input location and dimensional information about a proposed development on-airport to determine if they are required to file notice with FAA.	Allows planners and developers to quickly assess whether proposed structures related to vertiport structures and their height impact navigable airspace and require FAA notification.
FAA Form 7460-1 Notice of Proposed Construction or Alteration	Information to be submitted through OE/AAA portal is required to initiate an airspace evaluation for on-airport cases.	Required for structures that may affect airspace, including vertiports and their supporting infrastructure. Filing through the OE/AAA portal ensures FAA evaluates potential obstructions and maintains compliance with Part 77 for safe AAM operations.
FAA AC 150/5070-6B, Airport Master Plans ²¹	This Advisory Circular provides guidance on preparing airport master plans, including the development and documentation of Airport Layout Plans (ALPs), which depict existing and proposed airport facilities.	This FAA AC is essential for integrating vertiports or AAM facilities into existing airport environments. For Orange County, where coordination with GOAA and other airport sponsors is key, understanding ALP requirements ensures that new infrastructure is compatible with long-term airport development.
FAA ALP Approval Preliminary Instructions ²²	Initial instructions to Airports District Offices and Regional Office of Airports employees regarding Airport Layout Plan reviews and projects potentially affected by the FAA Reauthorization Act of 2024.	This guidance may affect how vertiport projects are reviewed and approved, particularly if they are located on or near federally obligated airport property.
FAA Order 1050.1G, Environmental Impacts: Policies and Procedures ²³	Details policies and procedures for compliance with NEPA and implementing regulations by the Council on Environmental Quality (CEQ).	Environmental review is a critical component of vertiport planning, especially in urbanized or environmentally sensitive areas. This FAA order provides the framework for evaluating noise, air quality, land use compatibility, and community impacts—key concerns for Orange County stakeholders and residents. It also supports alignment with local and state environmental review processes.

Document	Summary	Relevance
Source:		
21	FAA. FAA AC 150/5070-6B, Airport Master Plans. July 29, 2005 (with Change 2, January 27, 2015). Accessed October 28, 2025. https://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentNumber/150_5070-6	
22	FAA. FAA ALP Approval Preliminary Instructions. October 3, 2024. Accessed October 28, 2025. https://www.faa.gov/airports/planning_capacity/alp-approval-preliminary-instructions	
23	FAA. FAA Order 1050.1G, Environmental Impacts: Policies and Procedures. June 30, 2025. Accessed October 28, 2025. https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.current/documentNumber/1050_1	

1.4 Technical Standards for Vertiport Development

Certain characteristics of potential AAM use cases may require alternate processes, requirements, and standards for vertiport and proponents to follow. The type and variety of vehicles accommodated at a vertiport will impact the physical and operational characteristics of the future vertiport. The types of vehicles the vertiport will accommodate should be evaluated based on the market(s) the vertiport serves and with consideration that in the future, additional vehicles will enter the market. AAM operators should research vehicle capabilities, limitations, and requirements and collaborate with OEM’s to fully understand the operating characteristics of the range of vehicles operating at the site.

FAA Engineering Brief #105A Vertiport Design, Supplemental Guidance to Advisory Circular 150/5390-2D²³, provides interim guidance for vertiport design based on the characteristics of a reference aircraft, including assumptions about size, weight, and performance. These criteria may not fully represent the operational requirements of all AAM vehicles. If proposed aircraft differ from the reference design parameters such as rotor diameter, approach profiles, or performance capabilities, vertiport proponents should engage with the FAA Regional Office or Airports District Office (ADO) early in the planning process. This coordination is essential because the Touchdown and Liftoff Area (TLOF) and Final Approach and Takeoff Area (FATO) are reviewed by the FAA on a case-by-case basis to ensure safety and compliance.

The facilities that are used for AAM operations differ by the use, type of vehicle, and other factors. These facilities and surfaces below identify the required components for AAM operations. They can be constructed at ground level or elevated depending on the location of the site and constraints that may exist. The facilities listed below indicate the essential components necessary for AAM operations.

The term, “vertiport” is a collective term to describe both vertiports, the area used for electric, hydrogen and hybrid vertical takeoff and landing (VTOL) landings and takeoffs and the associated buildings and facilities, and vertistops. Vertistops describe a minimally developed vertiport for boarding and discharging passengers. Both vertiports and vertistops have a vertipad.

²³ Federal Aviation Administration. Engineering Brief No. 105A: Vertiport Design, Supplemental Guidance to Advisory Circular 150/5390-2D, Heliport Design. December 27, 2024. Accessed October 28, 2025.
https://www.faa.gov/airports/engineering/engineering_briefs/eb_105a_vertiports

Essential components of a vertiport landing area include:

- Rotor Diameter (RD): RD as the smallest circle enclosing the aircraft's rotating components (rotors or propulsors) in the takeoff/landing configuration. RD is the primary sizing metric for TLOF, FATO, and Safety Area dimensions, rather than the full aircraft projection.
- Touchdown and Liftoff Area (TLOF): the TLOF is a load-bearing, paved or stabilized surface located within the FATO. It must be centered, clearly marked with "VTL", and sized at a minimum of $1.0 \times RD$. This area is where aircraft perform touchdown and liftoff operations.
- Final Approach and Takeoff Area (FATO): The Final Approach and Takeoff Area is the obstacle-free zone where aircraft complete approach and initiate takeoff. The FATO must include the TLOF, be sized at least $2.0 \times$ Rotor Diameter (RD), and provide an obstacle-free volume meeting FAA-defined approach and departure surface criteria. It should be designed to support safe hover, landing, and departure operations under VFR conditions.
- Downwash/Outwash (DWO): The downward and outward movement of air caused by the action of rotating rotor blade, propeller, or ducted fan. When this air strikes the ground or some other surface, it causes a turbulent outflow of air from the aircraft.
- Imaginary surface(s): The imaginary planes defined in Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace, centered about the FATO and the approach/departure paths, which are used to identify the objects where notice to and evaluation by the FAA is required.
- Safety Area: The Safety Area surrounds the FATO and is intended to reduce risk from aircraft deviating during operations. It must be graded or stabilized, clear of obstacles, and sized at a minimum of $3.0 \times RD$. This area provides an additional buffer for operational safety beyond the FATO.
- Approach or Departure Path: Approach and departure paths must be designed for safe, efficient VTOL operations. Preferred paths align with prevailing winds to minimize crosswind and downwind approaches. Multiple paths should be provided, ideally reciprocal or separated by at least 135 degrees, and all must remain free of obstructions. Paths must meet FAA slope criteria (8:1 horizontal to vertical) and, where possible, operate independently of airport runways. While curved paths may be used for VFR operations, they are not evaluated by the FAA for obstacle impact or charting under 14 CFR Part 77. Figure 1 provides an illustration of vertiport approach and departure surfaces.
- Short takeoff runway: A short takeoff runway may be necessary in some instances, if the vehicles the vertiport is designed for are short takeoff and landing (STOL).

Other facilities that are may be included in a concept are influenced by the location of the vertiport, the activity levels, and its specific uses. These facilities may include:

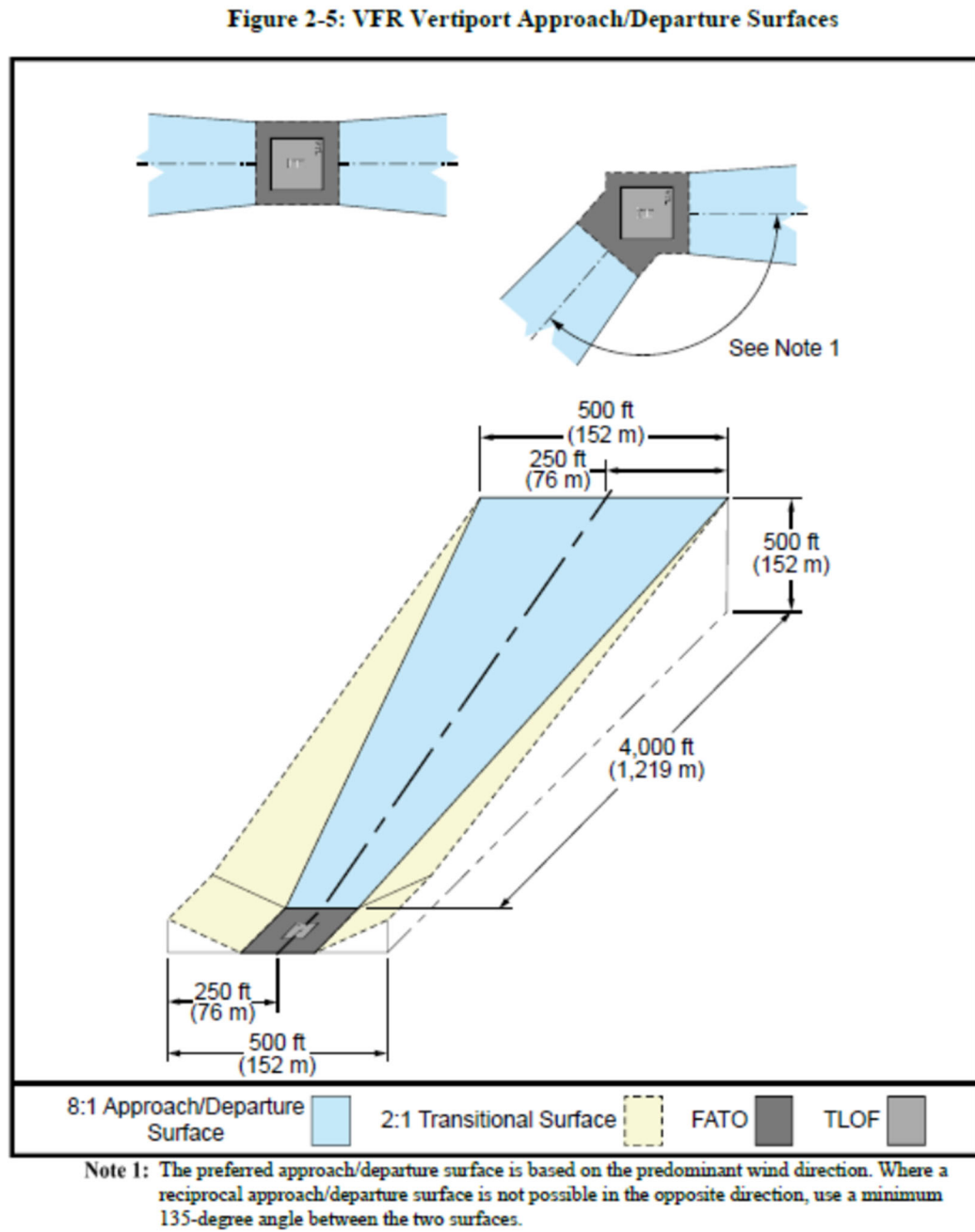
- Hangars: Single bay or multi-bay storage facilities to house VTOL vehicles to protect them from weather, while receiving maintenance and charging.

- Aprons: Paved areas for VTOL vehicles to be parked and tied down, loaded, maneuvered, or charged. The areas also provide space for ground support equipment (GSE) to help in the servicing of vehicles before and after operations.
- Taxiways or Taxilanes: Paved paths for vehicles to taxi between vertipads, aprons, and hangars or other storage facilities. Early design standards identified in FAA Engineering Brief #105A, state taxiways should be designed to Airplane Design Group (ADG) -I standards.
- Terminal or Passenger Processing Facilities: Facilities for processing passengers before or after a passenger AAM operation. Facilities are anticipated to include ticketing, baggage makeup and claim, Transportation Security Administration (TSA) screening and other security equipment similar to that of an airport terminal.
- General Aviation (GA) or Charter Facilities: Facilities for VTOL vehicles services before and after operations. Similar to a fixed-base operator (FBO) terminal, the GA facilities provide multiple services for customers.
- Cargo Processing Facility: Facilities for processing and loading cargo to and from vehicles for transport to other cargo aircraft or other cargo services.
- Auto Parking Lots: Areas designated for the parking of automobiles used by passengers and employees.
- Access Roads: Roadways that provide access to and from new AAM facilities connecting them to the local and regional roadway system.

EB-105 notes that local zoning officials, fire and law enforcement agencies, and community stakeholders should be engaged early and on a continuing basis, along with coordination with aviation facilities to avoid airspace, operational, and safety impacts, among other concerns (p. 13).

A number of the design standards in EB-105 would be regulated by the FAA and the FDOTs Aviation Office, with the County's regulatory role largely confined to land use compatibility and zoning protections. In addition to the standard compatibility issues addressed in Land Development Codes, vertiports have several key points to consider relative to adjacent land uses. First, the imaginary surfaces surrounding the FATO extend outward and upward and must be free of hazards. Also, EB-105 notes that caution areas associated with the DWOW, which can create debris and wind hazards, "can extend beyond the boundaries of the vertiport itself, and appropriate measures should be taken to mitigate the risks of DWOW in these areas" (p. 25). Finally, vertiport approach and departure paths are based on a variety of aviation and wind factors and must be free of obstructions. Taken together, these points could result in restrictions on surrounding land uses that may have regulatory and property rights dimensions for public vertiports with protected airspace.

Figure 1 Vertiport Approach/Departure Surfaces²⁴



²⁴ Engineering Brief 105, p. 28, Federal Aviation Administration, 2025.

Finally, EB-105 provides a list of references outlining applicable technical guidance for public safety at vertiports, including the 2021 International Fire Code and National Fire Protection Association (NFPA) standards. NFPA standards include several sections of NFPA 70, as well as NFPA 110, NFPA 400, NFPA 415, NFPA 418, and NFPA 855. County staff has conducted internal training, including a Nov. 2024 tabletop exercise attended by Fire Rescue Department staff, and will provide any applicable guidance to Fire Rescue and the County's Public Safety Director.

1.5 Energy Supply and Safety

The successful deployment of AAM operations will require reliable and scalable energy infrastructure to support the charging needs of multiple eVTOL aircraft. This demand must either be met by the existing electrical grid or supplemented through alternative energy sources and storage systems. To ensure adequate capacity and operational resilience, a comprehensive analysis of electrical load and projected demand should be conducted by the vertiport proponent during the early planning phases.

This analysis should evaluate the capabilities of the local grid which is served by both Duke Energy and Orlando Utilities Commission (OUC) within their respective territories. This evaluation should include their ability to support future growth, accommodate diverse operational profiles, and maintain resiliency in the face of outages or peak demand. Existing airport energy assessments and regional sustainability strategies may serve as useful references when developing a site-specific load analysis. For vertiports located on airport property, proponents should coordinate closely with airport operators and utility providers to confirm that sufficient electrical supply can be delivered and maintained.

To enhance energy reliability and reduce operational risk, supplemental power sources including solar arrays, battery storage systems, or microgrids should be considered during the design phase. These systems can provide backup power in the event of grid disruptions and support broader sustainability goals. Given the safety-critical nature of AAM operations, any loss of power could result in significant service interruptions or safety hazards.

To support long-term energy planning, proponents may develop an Energy Management Plan or Energy Master Plan to monitor usage, assess system performance, and identify opportunities to incorporate renewable energy sources. These plans should be updated regularly and aligned with evolving federal and local energy standards.

Implementation of AAM infrastructure will likely involve the construction of alternative energy systems and must comply with applicable safety codes, environmental regulations, and aviation-specific standards. Early coordination with regulatory agencies and utility partners will be essential to ensure that energy systems are designed to meet both operational and safety requirements. For utilities partners, this is particularly important to reduce long delays to increase capacity. Current lead times for critical components, such as transformers, are significant, making it vital to plan for capacity improvements in advance of AAM integration.

Table 5 provides a summary of electrical supply and demand planning resources.

Table 5 Electrical Supply and Demand Planning Resources

Document	Summary	Relevance
National Renewable Energy Laboratory (NREL) FAA Vertiport Electrical Infrastructure Study ²⁵	This FAA-sponsored study by NREL provides a comprehensive analysis of the electrical infrastructure needed to support eVTOL operations at vertiports. It models aircraft charging demand, grid impacts, and energy system integration, including distributed energy resources and storage. The study emphasizes megawatt-scale load planning, utility coordination, and the need for site-specific grid upgrades to accommodate high-power DC fast charging.	Projected AAM operations in Central Florida will create megawatt-scale charging demands at vertiports. This study underscores the need for coordination with Duke Energy and other local utilities to plan grid upgrades, integrate distributed energy resources, and ensure reliable high-power DC fast charging. Without early planning, grid limitations could delay vertiport deployment in Central Florida.
ACRP Report 236, Preparing Your Airport for Electric Aircraft and Hydrogen Technologies ²⁶	This report offers a roadmap for airports to prepare for electric and hydrogen-powered aircraft. It includes market forecasts, infrastructure requirements, power demand modeling, and scenario planning. A companion toolkit helps airports estimate future energy needs based on local conditions. The report also addresses stakeholder coordination, economic impacts, and integration with long-term airport planning documents.	Provides a roadmap for integrating electric and hydrogen aircraft into airports such as Orlando International Airport and regional vertiports. The toolkit can help model future energy demand scenarios, align infrastructure investments with AAM market forecasts, and incorporate these requirements into airport master plans and regional transportation strategies.
Energy Star Guidelines for Energy Management ²⁷	A seven-step framework for continuous energy performance improvement, including goal setting, performance assessment, action planning, implementation, and recognition. Widely used across sectors, the guidelines support strategic energy management and provide tools for benchmarking, facility audits, and program evaluation.	Supports a structured approach to energy management across airport facilities and vertiports. Implementing these guidelines can help set measurable goals for energy efficiency, reduce operational costs, and benchmark performance as electrification loads increase.
IEEE 519-2014, IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power Systems ²⁸	Defines acceptable limits for voltage and current distortion at the point of common coupling (PCC) to ensure power quality and protect equipment. The standard sets Total Harmonic Distortion (THD) and Total Demand Distortion (TDD) thresholds based on system voltage and load characteristics. It is critical for designing Electric Vehicle Supply Equipment (EVSE) and Energy Storage Systems (ESS) that interact with utility grids.	Critical for maintaining power quality when integrating high-power EVSE and ESS systems at vertiports. Compliance will prevent harmonic distortion that could damage sensitive airport equipment and disrupt operations, ensuring safe interaction with the local utility grid.

Document	Summary	Relevance
IEEE 1826-2020, IEEE Standard for Power Electronics Open System Interfaces in Zonal Electrical Distribution Systems Rated Above 100 kW ²⁹	Specifies open system interface requirements for high-power electronics in zonal distribution systems. It supports plug-and-play interoperability, rigorous conformance testing, and future technology integration. Applicable to airports, hospitals, data centers, and maritime platforms, the standard ensures scalable and modular electrical infrastructure.	Facilitates scalable, modular electrical infrastructure for vertiports and airport facilities. Adopting this standard will enable proponents to future-proof installations for evolving AAM technologies and maintain interoperability across multiple sites.
NFPA 110, Standard for Emergency and Standby Power Systems ³⁰	Establishes performance requirements for emergency power supply systems (EPSS), including generators, transfer switches, and control systems. Classifies systems by runtime (Class), restoration time (Type), and criticality (Level). Widely referenced in life safety codes, NFPA 110 ensures reliable backup power for critical infrastructure.	Ensures reliable emergency power for vertiports and airport operations during outages. Compliance is essential for life safety and continuity of critical services, especially given Florida’s vulnerability to hurricanes and severe weather events.
NFPA 70, National Energy Code (NEC) Article 706 - Energy Storage Systems ³¹	Covers installation and safety requirements for permanently installed ESS operating above 50V AC or 60V DC. Includes provisions for disconnecting means, overcurrent protection, ventilation, and system commissioning. Article 706 supports safe deployment of battery, flow, and flywheel ESS technologies.	Provides safety requirements for installing energy storage systems that will support peak charging loads and grid resiliency. Proper implementation will mitigate risks associated with high-capacity batteries at vertiports.
NFPA 855, Standard for the Installation of Stationary Energy Storage Systems ³²	Provides comprehensive safety requirements for installing ESS, including fire mitigation, explosion control, hazard analysis, and emergency response planning. Applies to all ESS technologies and includes specific provisions for lithium-ion systems. NFPA 855 is essential for AHJs and planners evaluating ESS siting and risk management.	Essential for safe siting and installation of stationary ESS at vertiports. Addresses fire and explosion hazards, which are critical considerations for densely populated areas and airport environments.
NFPA 70, NEC Article 625 - Electric Vehicle Charging System ³³	Defines installation requirements for EVSE, including wiring methods, overcurrent protection, grounding, and location standards. Supports both conductive and inductive charging and includes provisions for load management and energy management systems. Article 625 is critical for planning EV infrastructure at airports and vertiports.	Defines installation standards for EVSE at vertiports, ensuring compliance with electrical codes and safe operation of high-power charging systems. Supports integration with load management strategies to avoid grid overload.

Document	Summary	Relevance
Forecast of AAM activity ³⁴	Provides input on the electrical load that will be necessary for charging, as well as the number of vehicles and batteries to accommodate them.	Provides the baseline for electrical load forecasting and infrastructure sizing. Accurate activity projections will guide investment decisions, prevent under- or over-building, and align with regional mobility goals and tourism-driven transportation demand.

Source:

- 25 National Renewable Energy Laboratory (NREL). FAA Vertiport Electrical Infrastructure Study. 2023. Accessed October 28, 2025. <https://www.nrel.gov/docs/fy23osti/FAA-Vertiport-Electrical-Infrastructure.pdf>
- 26 Airport Cooperative Research Program (ACRP). ACRP Report 236: Preparing Your Airport for Electric Aircraft and Hydrogen Technologies. 2021. Accessed October 28, 2025. <https://nap.nationalacademies.org/catalog/26512/preparing-your-airport-for-electric-aircraft-and-hydrogen-technologies>
- 27 U.S. Environmental Protection Agency (EPA). Energy Star Guidelines for Energy Management. 2017. Accessed October 28, 2025. <https://www.energystar.gov/buildings/tools-and-resources/energy-star-guidelines-energy-management>
- 28 Institute of Electrical and Electronics Engineers (IEEE). IEEE 519-2014: IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power Systems. 2014. Accessed October 28, 2025. <https://standards.ieee.org/standard/519-2014.html>
- 29 Institute of Electrical and Electronics Engineers (IEEE). IEEE 1826-2020: IEEE Standard for Power Electronics Open System Interfaces in Zonal Electrical Distribution Systems Rated Above 100 kW. 2020. Accessed October 28, 2025. <https://standards.ieee.org/standard/1826-2020.html>
- 30 National Fire Protection Association (NFPA). NFPA 110, Standard for Emergency and Standby Power Systems. 2022 Edition. Accessed October 28, 2025. <https://www.nfpa.org/>
- 31 National Fire Protection Association (NFPA). NFPA 70, National Electrical Code (NEC) Article 706 – Energy Storage Systems. 2023 Edition. Accessed October 28, 2025. <https://www.nfpa.org/>
- 32 National Fire Protection Association (NFPA). NFPA 855, Standard for the Installation of Stationary Energy Storage Systems. 2023 Edition. Accessed October 28, 2025. <https://www.nfpa.org/>
- 33 National Fire Protection Association (NFPA). NFPA 70, NEC Article 625 – Electric Vehicle Charging System. 2023 Edition. Accessed October 28, 2025. <https://www.nfpa.org/>
- 34 Federal Aviation Administration (FAA). FAA Aerospace Forecast: UAS and AAM Summary. Accessed October 28, 2025. https://www.faa.gov/data_research/aviation/aerospace_forecasts/2025-uas-and-aam-summary.pdf

The electrical demand of eVTOL vehicles requires robust safety measures to manage electrical and thermal energy, as well as chemical materials used in batteries and related equipment. During the planning phase, policies and procedures that promote safety should be clearly defined. For electrical energy, this includes securing high voltage areas, managing battery storage and charging processes, addressing electromagnetic interference, and protecting electrical utilities and facilities. For thermal energy, this includes implementing cooling systems, complying with fire codes, and applying safeguards to prevent overheating and electrical fires. For chemical materials, this includes proper disposal of batteries and safe handling of hazardous substances.

In the design phase, analyses should confirm that these safety measures can be achieved. Additional studies may be required to verify that infrastructure and facilities can meet anticipated demand. In the implementation phase, any policy or procedure that may be compromised by increased equipment, battery capacity, electrical loads, or usage frequency should be updated to remain consistent with industry safety standards and requirements for electrical, thermal, and chemical hazards. Table 6 provides a summary of electrical, thermal and chemical safety guidance.

Table 6 Electrical, Thermal, and Chemical Safety Guidance

Document	Summary	Relevance
Overview of Potential Hazards in Electric Aircraft Charging Infrastructure ³⁵	Identifies potential hazards associated with the deployment of electric aircraft and associated charging infrastructure.	Protection of public safety and wellbeing.
2024 International Fire Code (IFC) ³⁶	Establishes comprehensive fire safety regulations to protect life and property from fire and explosion hazards. It covers general precautions, emergency planning, fire department access, water supplies, sprinkler and alarm systems, and hazardous material storage. Key updates include expanded requirements for energy storage systems (NFPA 855), new provisions for lithium-ion battery safety, rules for micromobility device charging, mandatory carbon monoxide detection in all occupancies, safe-use standards for A2L refrigerants, and added fire protection measures for distilled spirits and wine storage.	Protection of public safety and wellbeing.
National Fire Protection Association (NFPA) 400 Hazardous Materials Code ³⁷	Minimum NFPA standards for the storage and handling of hazardous materials such as lithium batteries.	Protection of public safety and wellbeing.
NFPA 418, Standard for Heliports and Vertiports ³⁸	This standard establishes fire safety requirements for operations at heliports and rooftop hangars for the protection of people, aircraft, and other property.	Protection of public safety and wellbeing.
29 CFR Section 1910.176, Handling Materials – General ³⁹	Provides the minimum requirements for the storage and handling of hazardous materials such as lithium batteries.	Protection of public safety and wellbeing.
Pipeline and Hazardous Materials Safety Administration (PHMSA) Lithium Battery Guide for Shippers A Compliance Tool for All Modes Of Transportation ⁴⁰	Demonstrates scenario-based situations that outline the requirements for those who may be packaging and shipping lithium-ion batteries for all modes of transportation.	Protection of public safety and wellbeing.

Document	Summary	Relevance
Lithium Battery Recycling Regulatory Status and Frequently Asked Questions ⁴¹	Clarifies how hazardous waste and universal waste regulations pertain to recycling lithium-ion batteries and answers frequently asked questions. Directs readers to associated regulations and resources.	Protection of public safety and wellbeing.

Source:

- 35 National Renewable Energy Laboratory Overview of Potential Hazards in Electric Aircraft Charging Infrastructure. October 2023. NREL/TP-5R00-83429. Available at: <https://www.nrel.gov/docs/fy24osti/83429.pdf>
- 36 International Code Council (ICC). 2024 International Fire Code. 2024. Accessed October 28, 2025. <https://shop.iccsafe.org/2024-international-fire-coder.html>
- 37 National Fire Protection Association (NFPA). NFPA 400, Hazardous Materials Code. 2025 Edition. Accessed October 28, 2025. <https://www.nfpa.org/>
- 38 National Fire Protection Association (NFPA). NFPA 418, Standard for Heliports and Vertiports. 2024 Edition. Accessed October 28, 2025. <https://link.nfpa.org/free-access/publications/418/2024>
- 39 Occupational Safety and Health Administration (OSHA). 29 CFR 1910.176, Handling Materials – General. Accessed October 28, 2025. <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.176>
- 40 U.S. Department of Transportation. Pipeline and Hazardous Materials Safety Administration (PHMSA). Lithium Battery Guide for Shippers: A Compliance Tool for All Modes of Transportation. Revised October 2024. Accessed October 28, 2025. <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2024-11/Lithium-Battery-Guide-2024.pdf>
- 41 United States Environmental Protection Agency (EPA). Lithium Battery Recycling Regulatory Status and Frequently Asked Questions. Accessed October 28, 2025. <https://rcrapublic.epa.gov/files/14957.pdf>

2. State of Florida Regulations

2.1 FDOT AAM Land Use Compatibility and Site Approval Guidebook (2024)

The FDOT AAM Land Use Compatibility and Site Approval Guidebook⁴² provides a comprehensive framework for integrating eVTOL aircraft into Florida’s transportation infrastructure. Developed through collaboration among state agencies, industry stakeholders, and local governments, the guidebook supports consistent, safe, and sustainable siting of vertiports across the state. It begins by defining AAM and its transformative potential to move people and goods efficiently, emphasizing Florida’s leadership in embracing this emerging mode of transportation. The guidebook aligns with Florida Statute (FS) Chapter 333, which governs airport zoning and land use compatibility, and incorporates relevant FAA regulations, including Part 77 and vertiport design standards.

The site approval process outlined in the guidebook includes initial screening, land use compatibility analysis, airspace and obstruction evaluation, environmental and community impact review, and coordination with FDOT and FAA. It provides detailed criteria for assessing compatibility with surrounding land uses, focusing on noise sensitivity, safety zones, visual impacts, and access to emergency services. The guidebook encourages integration with multimodal transportation hubs and transit-oriented development to enhance connectivity and reduce reliance on single-occupancy vehicles.

Environmental and community considerations are central to the guidebook’s approach, addressing potential impacts on wetlands, protected species, cultural and historic resources, environmental justice communities, and air quality. It recommends proactive public engagement strategies to build trust and support for AAM initiatives. Technical siting criteria are provided for vertiport layout, approach and departure paths, obstruction clearance, electrical infrastructure, and stormwater management. The guidebook also emphasizes the importance of interagency coordination, suggesting the formation of local AAM working groups to guide implementation and ensure alignment with broader transportation and land use goals.

To support implementation, the guidebook includes practical tools such as evaluation checklists, model ordinances for local governments, GIS-based screening tools for identifying suitable sites, and templates for public outreach. It concludes with recommendations for next steps, including local adoption of the guidebook, training for planners and permitting officials, support for pilot projects and demonstration sites, and ongoing updates to reflect evolving federal standards and technological advancements.

⁴² Florida Department of Transportation (FDOT). Advanced Air Mobility (AAM) Land Use Compatibility and Site Approval Guidebook: Final Report. September 2024. Accessed November 12, 2025. https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/aviation/fdot-aam-land-use-compatibility-and-site-approval-guidebook---sept-2024-final.pdf?sfvrsn=2cfc5e9f_1

In particular, the Guidebook's Fig. 1-3 and Appendix B provide valuable templates for vertiport planning considerations and applicant preapplication conferences in the development review process. The County submitted review comments to FDOT in the development of the Guidebook and has used Fig. 1-3 as a resource in staff training.

The Guidebook recommends that local government zoning codes require that applicants receive a favorable evaluation from the FAA and a site approval order from FDOT before local government approval (p. 19). However, the Orange County Attorney's Office has noted s.125.022(5), FS, prohibits counties from conditioning development permits or development orders on receipt of permits or approvals from any state or federal agency unless the agency has denied a permit before county action. Otherwise, the County will continue to use the Guidebook recommendations and extensive information graphics as significant resources in AAM planning and development.

2.2 FDOT AAM Roadmap (2022)

The FDOT AAM Roadmap⁴³ (Roadmap) provides a broad overview of key AAM topics, including profiles of major original equipment manufacturers (OEMs) and guidance on land use and noise compatibility, development review, and various planning considerations, such as equity and waste disposal. While several of these topics have received more detailed treatment in subsequent FDOT publications, the Roadmap is a useful compendium for County staff reference and should be reviewed in the development of development processes and training.

2.3 FDOT Recommended Minimum Standards for Vertiports (2022)

This FDOT publication mostly focuses on charging utility infrastructure and offers insights to address fire rescue and hazardous waste considerations at the local level.

2.4 FDOT's Plan of Action for AAM: Leading the Highway in the Sky's Development (2025)

FDOT's Plan of Action⁴⁴ presents an overview of FDOT AAM policy and implementation initiatives, including a reference timeline. Its target audience is industry, rather than local government, but is helpful to understanding the overall landscape of AAM policy and infrastructure development in Florida.

⁴³ Florida Department of Transportation (FDOT). *Advanced Air Mobility Roadmap Executive Summary*. February 2022. Accessed November 13, 2025. <https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/aviation/fdot-aam-roadmap-exec-summary.pdf>

⁴⁴ Florida Department of Transportation (FDOT). *Plan of Action for AAM: Leading the Highway in the Sky's Development*. 2025. Accessed November 13, 2025. (Referenced via FDOT modal development news update, June 17 2024 tabletop exercises leading to 2025 initiatives.) <https://www.fdot.gov/info/co/news/2024/06172024>

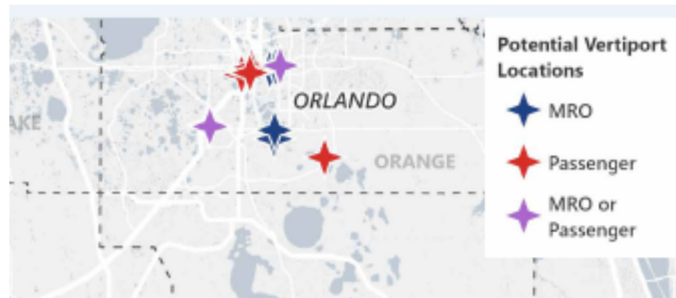
2.5 FDOT AAM Business Plan (2025)

FDOT’s Business Plan (Business Plan) provides a helpful practical resource to provide awareness of FDOT’s goals and anticipation for an Orange County AAM network of possible vertiport sites. The Business Plan details a phased approach for deployment of Florida’s Aerial Network, with the Central Florida I-4 Corridor as Phase 1A and a top priority, complemented by the phased development of vertiport and research facilities via expansion of their SunTrax facility by December 2026.

To advance this effort, FDOT has completed vertiport site-suitability analysis to identify optimal vertiport locations in the I-4 Tampa-Orlando corridor based on airspace, land use, emergency access and public safety, roadways, accessibility, and terminal facilities. After reviewing over 239,000 parcels, the site-suitability analysis identified 15 potential vertiport sites in Tampa and 15 potential vertiport sites in the Orlando metro area, including Maintenance, Repair, and Overhaul (MRO) sites, as shown in Figure 2. MRO sites provide fueling, charging, storage, maintenance and related services and would not be accessible to the public.

The screening identified nine (9) MRO sites; 16 passenger sites; and five sites that could be either MRO or passenger. FDOT will conduct further evaluation of these sites, based on their suitability scores and their spatial distribution within the corridor. The AAM Feasibility Study will be coordinated with FDOT’s site-suitability analysis to determine the appropriateness of identified sites, based on the County’s planning, regulations, and interests.

Figure 2 Potential Vertiport Locations, FDOT AAM Business Plan



The Business Plan also identifies helpful metrics for the County’s future efforts at site-suitability assessment, as shown in Table 7.

Table 7 FDOT AAM Business Plan typical dimensional criteria for Vertiports

Airside Items	
Take-off and Landing Area	0.35 acres
eVTOL Parking	0.4 acres per space
Hangar/Maintenance Facility	0.5 acres
Support Equipment (Weather station, communications, lighting, fire safety, chargers, etc.)	0.5 acres
Landside Items	
Passenger Facilities	0.1 acres
Vehicle Parking	0.25 acres
Total (4 eVTOL Spaces)	3.3 acres

Source: AAM Business Plan, p. 20, Florida Department of Transportation, 2025.

2.6 Chapters 330, 332, and 333, Florida Statutes⁴⁵

The County’s planning should be coordinated with various statutes relating to airport/heliport site approvals, airport zoning, and compatibility. Vertiport review and approval processes are noted in s. 330, FS, including local governments’ role in reviewing proposals and coordinating with FDOT. The County envisions continued coordination with FDOT’s AAM planning being completed in compliance with s. 332.15, FS, which requires statewide planning, regulatory assessments, and other coordination activities.

The County also is required to adopt and maintain airport protection zoning consistent with Ch. 333, FS, which requires evaluation of airspace hazards, land-use compatibility, noise impacts, and proximity to existing flight operations. The County’s obstruction permitting, lighting, and airspace protection provisions in Ch. 7, Orange County Code, address those needs.

⁴⁵ Florida Senate. Florida Statutes, Title XXV Aviation, Chapters 330, 332, and 333. Accessed November 13, 2025.
<https://www.flhouse.gov/Statutes/2025/Chapter330/>
<https://www.flsenate.gov/Laws/Statutes/2025/Chapter332/All>
<https://statutes.flrules.org/chapter/333>

3. Documented Proceedings of AAM Coordination Activities and Symposia

Federal and state coordination and research symposia efforts are critical to shaping the regulatory, technical, and operational landscape for Advanced Air Mobility (AAM) in the United States and Florida. As AAM transitions from concept to implementation, agencies such as the FAA, NASA, U.S. DOT, and state partners like the FDOT are establishing frameworks that define airspace integration, vertiport siting, electrification standards, and interoperability requirements. These initiatives include national research programs, interagency working groups, and policy symposia that address certification pathways, safety protocols, and community engagement strategies. At the state level, Florida has advanced its leadership through guidebooks, webinars, and legislative actions that promote consistent land-use compatibility, multimodal connectivity, and funding mechanisms for infrastructure development. Documenting these activities provides Orange County with a roadmap to align local planning with emerging federal and state priorities, anticipate regulatory requirements, and leverage partnership opportunities to accelerate AAM readiness.

3.1 Federal AAM Coordination and Research

3.1.1 ACRP Research Report 243: Urban Air Mobility – An Airport Perspective

The Airport Cooperative Research Program’s ACRP Research Report 243, *Urban Air Mobility: An Airport Perspective (2023)*⁴⁶, is the most airport-focused national reference for AAM integration. It synthesizes UAM/AAM market outlooks, use cases, business implications for airports, impact assessments, and—critically for practitioners—practical planning strategies for on-airport integration. The report also ships with two implementable tools: an Airport AAM Preparation Checklist and a UAM Airport Assessment Toolkit that help project sponsors assess readiness (airspace, facilities, safety/security, utilities) and stage next steps; the Transportation Research Board (TRB) project record confirms the scope and deliverables that culminated in Report 243.

3.1.2 APA Planning for Advanced Air Mobility – PAS 606, 2024

The report⁴⁷ gives guidance to local governments to embed AAM into existing planning tools—especially comprehensive plans, zoning, and approval processes—so vertiport locations are guided by policy from the start. It recommends using airport-style master planning to define

⁴⁶ TRB. ACRP Research Report 243: Urban Air Mobility – An Airport Perspective. Accessed November 13, 2025. <https://nap.nationalacademies.org/catalog/26899/urban-air-mobility-an-airport-perspective>

⁴⁷ American Planning Association. (2021). Planning for Advanced Air Mobility (PAS Report No. 606a). Retrieved from https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/PAS-Report-606a.pdf

where vertiports fit, pairing land-use compatibility (buffers to sensitive uses, protection of approach/departure paths) with regional system planning (Metropolitan Planning Organization plans and Regional Aviation System Plans) to identify suitable nodes and corridors. Local codes should add clear AAM/vertiport definitions, minimum parcel sizes, and setbacks tied to FAA EB-105 geometry, because aircraft “controlling dimensions” directly determine the footprint and adjacent height limits. In practice, jurisdictions should map compatible and incompatible uses around Vertiport Influence Areas, plan approach surfaces early and align candidate sites with multimodal hubs and airport networks.

3.1.3 Strategic Plan 2024-2026 Smart Connected Systems Division

The National Institute of Standards and Technology (NIST), through its Smart Connected Systems Division, published the Global City Teams Challenge (GCTC) Strategic Plan⁴⁸ in October 2024. This plan establishes long-term objectives for developing technology requirements, performance metrics, and interoperability standards that enable secure, resilient, and connected urban systems. These standards form the foundation for smart city infrastructure, including data platforms, communication networks, and system resilience, which are essential for integrating emerging technologies such as AAM into multimodal transportation ecosystems. By promoting interoperability and common frameworks, NIST’s work ensures that cities can support AAM operations within broader smart infrastructure initiatives.

3.1.4 AUVSI Drone & Advanced Air Mobility Policy Symposium

The Drone and AAM Policy Symposium⁴⁹, held July 29–30, 2025, at Nationals Park in Washington, DC, was hosted by AUVSI with significant participation from federal agencies. Attendees included representatives from FAA divisions (Aviation Safety (AVS), Air Traffic Organization (ATO), UAS Integration Office (AUS), Aircraft Certification Service (AIR), DOT, NASA, DHS/TSA, National Transportation Safety Board (NTSB), National Telecommunications and Information Administration (NTIA), Federal Communications Commission (FCC), and Department of Defense (DoD), as well as industry leaders and congressional staff. The agenda featured interactive panels on BVLOS rulemaking (Part 108), UTM and airspace integration, autonomy, and security, alongside outdoor drone demonstrations by Wing, DEXA, and Hextronics. Keynote speakers—such as Michael Robbins (AUVSI CEO), Dan Edwards (Acting Assistant Secretary, DOT), and Christopher Senn (FAA)—called for expedited Beyond Visual Line of Sight (BVLOS) FAA rulemaking (NPRM delays over 300 days), universal aircraft position reporting, and strengthened Counter-UAS policies. The event coincided with the release of a draft BVLOS rule, reflecting a pivotal moment in transitioning from demonstration to regulation.

The symposium’s outcomes provide a direct view into federal regulatory trends that will shape AAM airspace requirements, interagency coordination, and certification standards. Monitoring developments discussed at AUVSI—such as BVLOS final rule publication, UTM integration guidance, and FAA certification expectations—will help local planners anticipate federal

⁴⁸ National Institute of Standards and Technology (NIST). Smart Cities and Communities: Global City Teams Challenge Strategic Plan (SP 1900-207). Accessed November 13, 2025. <https://doi.org/10.6028/NIST.SP.1900-207>

⁴⁹ Association for Uncrewed Vehicle Systems International (AUVSI). Drone & Advanced Air Mobility Policy Symposium Agenda. Accessed November 13, 2025. <https://www.auvsi.org/event/drone-and-aam-policy-symposium/>

requirements for vertiport siting, operations, and airspace access, and position those entities to participate in future Federal and industry-led AAM pilot programs and demonstrations.

3.2 State of Florida AAM Coordination

3.2.1 Florida Department of Transportation (FDOT) Transportation Symposium

The FDOT Transportation Symposium, held on October 28–29, 2025, brought together transportation professionals statewide to discuss multimodal integration, NEPA compliance, and emerging technologies such as connected and automated vehicles (CAV) and electrification. While AAM was not explicitly listed in the official agenda, the symposium’s emphasis on future mobility systems, corridor planning, and electric infrastructure readiness aligns closely with foundational elements of vertiport development and eVTOL integration. For Orange County, these themes signal FDOT’s commitment to preparing for next-generation transportation and provide guidance on environmental review, land use compatibility, and multimodal connectivity—all critical for AAM planning. Local agencies should review symposium proceedings, incorporate FDOT recommendations into zoning and infrastructure strategies, and coordinate with FDOT to identify funding opportunities for electrification and vertiport projects under statewide mobility initiatives.

3.2.2 Florida Local Technical Assistance Program (LTAP) Webinar

On April 29, 2025, the Florida LTAP Center hosted a webinar titled “Advanced Air Mobility in Florida: Planning for the Next Era of Integrated Multimodal Transportation”, presented by Dr. Yu Zhang of the University of South Florida (USF). The session introduced AAM fundamentals, compared eVTOL aircraft to helicopters in terms of noise, emissions, cost, and operational characteristics, and outlined technology milestones and projected timelines for initial services between 2025 and 2030. It also reviewed FDOT’s AAM roadmap, including planning tools for local governments, and discussed infrastructure needs such as vertiports and charging systems. This webinar provides essential technical and policy guidance for zoning updates, land-use planning, and community engagement, highlighting AAM’s potential benefits in reducing congestion, noise, and emissions. County planners should incorporate these insights into public outreach strategies and collaborate with USF and FDOT for technical assistance on vertiport design standards and integration with multimodal networks.

3.2.3 Space Florida Initiatives

In July 2024, a “Route-Attractiveness” study by Lufthansa Innovation Hub, Roland Berger, and partners ranked Orlando among the top U.S. launch regions for Advanced Air Mobility (AAM), citing favorable terrain, weather, and regulatory conditions. In June 2025, during a trade mission in Paris, Governor Ron DeSantis signed Senate Bill 1516, effective July 1, creating the International Aerospace Innovation Fund (IAIF) to accelerate global aerospace innovation. Administered by Space Florida, IAIF is designed to foster public–private partnerships, attract investment, and support workforce development and commercialization projects. A July 2025 Florida House analysis of CS/HB 793 clarifies IAIF’s structure, requiring Space Florida to establish eligibility criteria, manage applications, and ensure compliance for projects involving research,

training, and international collaboration. These initiatives position Florida—and regions like Orange County—to leverage IAIF funding for vertiport infrastructure, advanced mobility technologies, and global partnerships, aligning local AAM strategies with statewide economic development goals.

3.2.4 Tampa (USF-CUTR AAM research program via FDOT D7), Evaluating the Impacts of Emerging Advanced Air Mobility on the Transportation System in the Tampa Bay Region

Evaluating the Impacts of Emerging Advanced Air Mobility on the Transportation System in the Tampa Bay Region was prepared by Yu Zhang, Ph.D. at the Smart Urban Mobility Lab & Advanced Air Mobility Program at Center for Urban Transportation Research (CUTR), University of South Florida for FDOT District 7.

Section 6 of the report goes into detail on vertiport location planning. The report builds a rigorous methodology to choose vertiport locations by coupling airspace feasibility with multimodal demand and access/egress. It first screens sky routes using air traffic trajectory data from OpenSky to identify “no-go” cubes, then computes realistic eVTOL flight times to avoid those hot zones.

On the ground, the study treats AMM like a station-based service. Any potential vertiport has to be easy to get to—by transit, ride-hail, or car—within a reasonable travel shed. For each origin–destination pair the model compares the total travel cost of using AAM (time plus any fares/fees) to the cost of just driving. To choose locations, the model first picks a set of vertiports that, together, cut the most travel time and cost across the whole region. Then it repeatedly fine-tunes that set to cover as many trips as possible with convenient access.

The Tampa Bay case study for 2045 suggests a network of 45–60 vertiports, with most demand at downtowns and activity centers like Tampa’s core, St. Petersburg, and Clearwater. The longer the car trip, the more likely people are to switch to AAM usage. For site selection the report focuses on hubs that (1) are quick to reach by car or transit for travelers, (2) allow flight paths that steer clear of busy flight areas and (3) create real time-and-money savings across the whole system. The study also suggests that adding more than 60 vertiports brings smaller benefits; shrinking the access area around each site quickly cuts demand; prices and curb/parking policies matter a lot (for example, free parking boosted daily AAM trips from about 31,000 to 54,000); and cheaper air fares or higher gas prices push more people to AAM and improve LOS on key corridors. Overall, the study proposes treating site selection like designing a network: choose locations that, together, maximize total time savings in ways that acknowledge real-world access, airspace, and pricing.

4. Orange County Comprehensive Plan and Land Development Code Policies

4.1 Orange County Comprehensive Plan

This section includes a review of the relevant existing and proposed County Comprehensive Plan policies, including policies related to innovation and property rights. Section 4.2 describes Land Development Code (LDC) standards for vertiports.

Vision 2050 and Orange Code were adopted but found invalid by FloridaCommerce based on their interpretation of certain provisions of Senate Bill 180 (2025). At this time, policies in the 2030 Comprehensive Plan and LDC standards in Orange County Code are in effect, pending resolution of that matter.

4.1.1 Comprehensive Plan – Destination 2030 (in effect)

4.1.1.1 International Drive Activity Center Element

This chapter of the Comprehensive Plan contains special-area policies and design standards for the designated International Drive Activity Center (IDAC), which is governed by form-based regulations and a Conceptual Regulating Plan (CRP). Policy ID1.4.2 outlines 8 sub-districts, and Policy ID1.4.3.1 defines the transects. These are depicted in the CRP, adopted as Map 23 of the Comprehensive Plan.

The IDAC generally includes the highest densities and intensities and more mixed-use districts than Orange County as a whole, as seen in the CRP. The tourist orientation of land uses accommodates the tens of millions of annual visitors to the International Drive (I-Drive) corridor. Other policies relevant to consideration of AAM include Objective 1.3, which states the County shall continue to pursue transportation linkages between points of tourist arrival and the IDAC.

4.1.1.2 Future Land Use Element

The County's Comprehensive Plan for the year 2030 includes future land use designations that are largely single-use districts outside of the designated special area districts, such as Horizon West and Lake Pickett. Policy FLU1.1.2 outlines allowable densities, which allow a maximum of 50 dwelling units per acre in the High-Density Residential category. Mixed-use districts include Planned Development, Traditional Neighborhood Development, and Mixed-Use Corridor (Table 1.1.4B). The County also has a designated Aviation Growth Center and related Policy FLU7.4.9 associated with the West Orange Aviation District.

Given the size of the County and its special planning areas, as this study refines the areas of Orange County for which feasibility analysis is conducted, more detailed assessment of Comprehensive Plan policy implications should be completed at the time of vertiport application by the proponent.

4.1.1.3 Transportation Element

This chapter of the Comprehensive Plan focuses on multimodal transportation networks planned through extensive regional coordination, providing extensive support for AAM planning although the term is not specifically referenced. Objective T3.4 requires the County to coordinate with governments, agencies, and public and private entities to plan a regional multimodal transportation system. Another example is Policy T3.6.5, which requires the County to transportation corridors, where appropriate, to accommodate multiple modes of transportation,

Policy T3.4.1 notes the County will collaborate with FDOT, MetroPlan Orlando, LYNX, local governments, Central Florida Expressway Authority (CFX), and the private sector to plan the “development and operation of viable and financially feasible transportation systems on a local and regional scale that use state-of-the-art and energy-efficient infrastructure, vehicles, materials, technologies, and methodologies, where economically feasible.” Per Policy T3.4.2.1, this also includes capacity and operational project needs in state and regional freight plans, a potential AAM use case.

The Transportation Element addresses aviation under Objective T3.5, which requires the integration of existing and future aviation facilities into the overall transportation system. Policy T3.5.1 requires inter-agency coordination to promote multimodal and intermodal transportation systems that connect the Orlando International Airport (OIA) and the Orlando Executive Airport (OEA) to the overall transportation network. The County also shall ensure GOAA’s aviation improvements and operations “are coordinated with area transportation agencies and projects, are supported by appropriate land use and airport noise regulations, are reviewed for potential transportation and environmental impacts and required mitigation and are consistent with the Comprehensive Plan” (Policy T3.5.2). Aviation-related maps are adopted into the Comprehensive Plan as Maps 4A-4E. Inter-agency coordination is increasingly important, given GOAA’s proposed vertiports and other facilities associated with their East Airfield development at OIA.

Finally, the County must coordinate with any proposed new general aviation facility “to provide technical assistance as needed and to ensure aviation development is consistent and compatible with surrounding land use and community context to address transportation and environmental impacts and required mitigation consistent with applicable plans and regulations; to implement appropriate land use and airport noise regulations; and coordinate surface transportation access and projects consistent with local, regional, and state transportation plans” (Policy T3.5.5). This policy addresses several aspects of proposed vertiports within an overall aviation planning framework and provides clear direction on corresponding County responsibilities.

4.1.2 Comprehensive Plan – Vision 2050 (pending resolution)

4.1.2.1 Land Use, Mobility, and Neighborhoods Chapter

This chapter completely reorganizes the land use paradigm in the County’s 2030 Comprehensive Plan by expanding form-based regulation to the entire unincorporated areas of the county, with the exception of special planning areas and Growth Centers that maintain existing entitlements.

Table LMN 1.6.3 (c) outlines this complex framework, which varies by a property's location in the Urban or Rural Service Areas, Sector, Place Type, and flexible density category. The chapter also contains additional policies unique to each of five designated Market Areas.

Based on the complexity of Vision 2050's regulatory structure, the large number of Place Types, and the status of Vision 2050, more detailed assessment of policy implications should be completed when areas are selected for feasibility analysis.

4.1.2.2 Economy, Technology, and Innovation Chapter

Objective ETI 1.3 and its related policies promote economic diversification by investing in the attraction of new industries, while continuing to support innovation and expansion in existing base industries, including space and aerospace. In particular, Policies ETI 1.3.4 and ETI 1.3.5 support initiatives and public-private partnerships to advance innovation and key industries.

4.1.2.3 Transportation Chapter

Goal T 1: Orange County will design a safe, accessible, and financially-feasible multimodal transportation system for roadways, rail, transit, major bicycle and pedestrian facilities, trails, and aviation to increase healthy and equitable mobility for all and reduce environmental impacts and greenhouse gas emissions.

Starting with the broad multimodal vision, including for aviation, seen in Goal T 1, this chapter maintains the focus on transportation network planning and regional coordination seen in the 2030 Comprehensive Plan, while expanding support for innovation and new technologies:

- Regional coordination policies have been maintained under Objective T 1.3.
- Aviation policies have been maintained and reorganized under Objective T 1.6. New Policy T1.6.4 notes the County will encourage "commercial air carrier and general aviation facilities that efficiently meet the needs of passengers, commercial airlines, and general aviation users," an AAM-supportive policy.
- Key themes in the former Policy T3.4.1 have been elevated to Goal T 3 relating to technology and sustainability, implemented via Objective T 3.1 and several new policies expressing support for Automated, Connected, Electric, and Shared (ACES) transportation.

As one example, Policy T 3.1.5 states the County will "monitor and evaluate adopted transportation technology systems, equipment, and components to determine their compatibility, efficiency, resiliency, cost effectiveness, and ability to support the safe and efficient movement of people and goods within the County." With a more direct focus on aviation and multimodal facilities, Policy T 3.1.6 notes the County will "support the provision of intermodal stations which include electric charging infrastructure to facilitate safe and accessible transitions between appropriate travel modes, including pedestrians, bicycles, electric bicycles and scooters, rail, aviation, buses, and automobiles." This policy provides support for appropriately-planned vertiport facilities as part of a larger ACES framework to support multimodal transportation.

Policy T 3.2.1 maintains the County’s commitment to regional collaboration to developing and operating viable and financially feasible transportation systems on a local and regional scale that use state-of-the-art and energy-efficient infrastructure, vehicles, materials, technologies, and methodologies, as envisioned in AAM planning. A new Policy T 3.2.3 adds a requirement for the County to evaluate infrastructure interoperability for appropriate coordination with local, regional, and state agency systems and operations. Also, a new Policy T 3.3.1 adds a requirement to make an urban freight plan that considers trends and technologies, which could also reflect AAM planning as needed.

Finally, the Transportation Chapter includes several new sustainability policies that would support the expansion of electric aviation. Policy T 3.4.4 states the County will support multimodal options and clean energy alternatives that reduce energy consumption and emissions. Policy T 3.4.5 notes the County’s transportation planning, design, construction, and maintenance will emerging technologies and advanced materials, stormwater management, and infrastructure modifications. Finally, Policy T 3.4.6 The County will enhance the sustainability and agility of the transportation system, in part by providing more multimodal options

4.1.2.4 Implementation and Property Rights Chapter

Emerging regulations on AAM must take into account its effects on adjacent and neighboring properties, particularly with the constraints on development associated with airspace protection. Goal IMP 2.1 and related policies express the County’s intent to consider property rights in local decision-making, consistent with applicable state law.

4.2 Land Development Code

4.2.1 Orange County Code (in effect)

4.2.1.1 Chapter 7

Chapter 7, Orange County Code, (OCC) outlines airport zoning regulations to promote safety and prevent hazards related to airport operations, including definitions for aircraft and airport broad enough to apply to eVTOL and vertiports respectively. The chapter establishes the authority for these regulations, identifies the purpose of the regulations, outlines review processes and permitting, and includes specific regulations for nonconforming uses. It identifies an “Airport Zoning Director”, defined as the Zoning Manager or designee, to administer and enforce the Chapter 7 regulations. Chapter 7 was most recently updated in 2018 to reflect 2016 updates to Chapter 333, FS, requiring local governments to adopt airport zoning regulations with specific provisions.

These regulations apply to all land within the unincorporated area, except property owned by the Greater Orlando Aviation Authority and subject to federal oversight. Chapter 7 establishes specific zones and height limits requiring an airport height zoning permit, including any structure or object over 200 feet above ground level. Structures exceeding certain heights must obtain a permit from the County’s Zoning Manager (Sec. 7-11 and 7-15, OCC).

4.2.1.2 Chapter 9

Chapter 9, OCC, includes the County's building and construction regulations. Art. XV establishes airport noise impact areas, including land use control zones for properties surrounding OIA or OEA. Zones are based on a combination of noise metrics determined via a FAA Part 150 study and range from Zone A – E. Various levels of noise attenuation are required based on the property's location within a zone and its land use. Single-family, multi-family and mobile home uses are prohibited in Zones A and B.

The County administers this chapter in close coordination with GOAA and will continue to monitor eVTOL noise data made available during the federal government certification process. The County also will consult corresponding guidance from federal and state agencies, when available, to determine any necessary revisions to this chapter. Revisions to Chapter 9 may be necessary as locations for AAM operations are identified.

4.2.1.3 Chapter 30

Chapter 30 includes a variety of planning and development standards affecting site development. One example is the curb zone management strategies outlined in Sec. 30-255, OCC. The County may require designated passenger loading zones, staging areas for shared mobility services, and/or short-term parking spaces for curbside delivery or delivery services, which may be centralized and shared by multiple users within a development. The County also requires safety and accessibility features, such as curb ramps and bollards, and offers a parking reduction incentive. The County adopted these standards to promote multimodal travel and convenient and accessible last-mile connections that can benefit vertiport development.

4.2.1.4 Chapter 38

Chapter 38 is the County's zoning code and provides several key elements of local vertiport regulation, including allowable zoning districts and general site development standards. Sec. 38-77, OCC, depicts allowable zoning districts by right and additional districts allowable by special exception, which would require a public hearing and advisory recommendation from the County's Board of Zoning Adjustment. Table 8 identifies if airports and heliports are permitted by Special Exception in different zoning districts of the Orange County Code.

Table 8 Permitted Uses of Sec. 38-77, Orange County Code

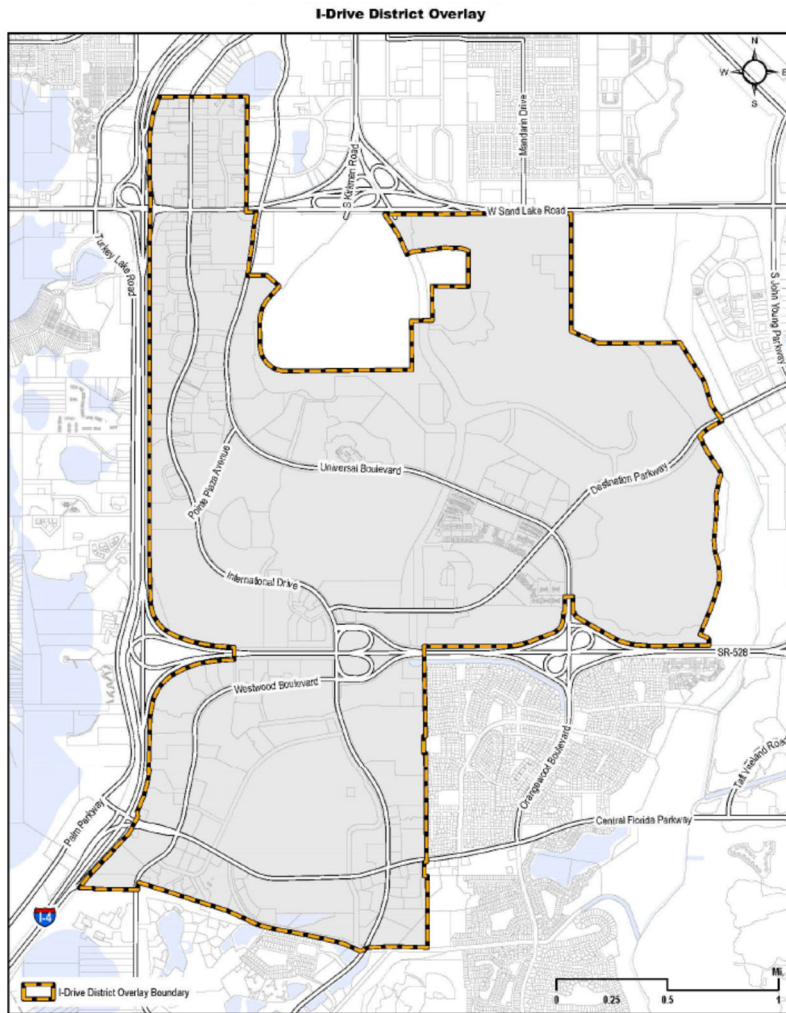
Uses Per Zoning Code	SIC Group	Land Use	A-1	A-2	A-R	RCE-5	RCE-2	RCE	P-O	C-1	C-2	C-3	I-1A	I-1, I-5	I-2, I-3	I-4
	45	TRANSPORTATION BY AIR	S	S	S	S	S	S			S	S	S	S	S	S
Airports, airplane landing facilities, aircraft maintenance, seaplane base	4581	Airports, flying fields & services	S	S	S	S	S	S		S	S	S	S	S	S	S
Helicopter landing facility, Vertiport, airship/blimp hanger facility and hangars	4581	Airports, flying fields & services	S	S	S	S	S	S		S	S	S	P	P	P	P

P = Permitted use S = Special exception required

Source: Orange County Code, Orange County Government, 2025.

In the designated International Drive District Overlay Zone (as shown in Figure 3), “helicopter commercial enterprises (heli-tours or similar uses)” are prohibited (Sec. 38-865(e)(12), OCC). The Code does allow uses that aren’t listed and aren’t similar in nature and impact to a permitted use to be submitted to the County’s Development Review Committee and the Board of County Commissioners for consideration (Sec. 38-865(b)(2), OCC).

Figure 3 I-Drive Overlay District



4.2.2 Orange Code (pending resolution)

The adoption of Orange Code added vertiport-specific standards to the County’s LDC, including key aspects relating to development review and public safety. Table 9 reflects the form-based orientation of Orange Code and specifies where vertiports are allowable by right and by special exception.

Table 9 Permitted Uses by Zone

Table 87: Permitted Uses By Zone

	T2 Rural			T3 Sub-Urban			T4 General			T5 Center			T6 Urban Core			CZ Civic		SZ Special Zones					
	1	2	3	1	2	3	1	2	3	1 ¹	2	3	1	2	3	CF	OS	LI	HI	EN	MH	ED	
- Raising and keeping of goats, sheep, lambs, and pigs	P/S*	P*/S*	P*/S*	P*/S*																A*/S*		A*/S*	
Agriculture (see Sec. 40-166 Agriculture. for Additional Standards)																							
Commercial Nurseries & Greenhouses		P*		P*														P	P			A/P*	
Veterinary Services for Live-stock		P																P	P		A*	A/P	
Transportation & Infrastructure (see "Sec. 40-167 Transportation and Infrastructure" for Additional Standards)																							
Airport		S																S	S				
Communication Tower		P*/S*		P*/S*			P*/S*		P*/S*			P*/S*				P*/S*						P*/S*	
Public Parking (Principal Use)								P*		P*		P*			P*	P*		P	P	P			
Transit Facility		P*		P*			P*		P			P			A	A		P	P	P	P*	A	
Truck Stop																		P	P				
- Truck Parking and Parking of Dual Rear Wheel Vehicles		A*							S	S		S						P	P				
Renewable Energy		A*		A*			A*		A*			A*			A*		S*	S*	P*	P*	A*	A*	A*
- Large scale installations		P*																P*	P*				
Utilities		P*/S		P*/S			P*/S		P*/S			P*/S			P*/S			P*	P*	P*/S	P*/S	P*/S	
Vertiports, Heliports, and Sea Plane Bases		S*							S*			S*						P*	P*	S*			
Open Space (see Article 5 Division 4: Civic and Open Space for Additional Standards)																							
Open Space		P*		P*			P*		P*			P*			P*	P*						P*	

P Permitted Use P* Permitted Use, with Additional Standards A Permitted as an Accessory Use only
 S Special Exception S* Special Exception, with Additional Standards A* Accessory Use, with Additional Standards
 * Refer to Division 7: Public School Siting Regulations Boxes with no designation signify prohibited use.
¹ Uses and intensity may be further limited by Rural Center Policies (LMN 4.2.5, LMN 4.3.2(a), LMN 4.3.10 - LMN 4.3.12).

Source: Orange Code, p. 229. Orange County Government 2024.

Sec. 40-167(f) of Orange Code outlines required development standards for vertiports, which must be common use and public facilities per FAA guidelines and meet all requirements of the FAA's vertiport site development standards. Other requirements include:

- Pre-application conference with the Zoning Division;
- Documentation of the specific aircraft at the vertiport, the utility infrastructure needed, and location and type of all fire safety equipment in a plan consistent with NFPA standards for vertiports and energy storage and that shall be reviewed by the Orange County Fire Rescue Department; and
- All other applicable state or federal permits obtained before commencement of development consistent with s. 125.022, FS.

Orange Code also includes several key definitions in Art. VI, as follows:

- Common use facility (vertiport-related): a facility that allows the shared use of the vertiport infrastructure by any airline or operator desiring to operate at the vertiport.
- Public facility (vertiport related): a publicly or privately-owned facility that is open for use by the public.

- **Vertiport:** an area of land or water used, or intended to be used, to support the landing, takeoff, taxiing, parking, and storage of powered-lift aircraft or other aircraft that vertiport design and performance standards established by the Federal Aviation Administration can accommodate, including appurtenant areas, buildings, facilities, or rights-of-way necessary to facilitate such use or intended use. This includes vertistops, vertipads, or similar specialized areas for vertical takeoff and landing with no aircraft charging facilities.

4.3 Other Orange County initiatives

4.3.1 Orange County Regional Economic Summit: Advancing Workforce and AAM Integration

The Orange County Regional Economic Summit⁵⁰ held on October 24, 2025, highlighted the county's commitment to innovation, workforce development, and emerging technologies such as AAM. County leaders and business executives emphasized the importance of public-private partnerships to strengthen the region's economic resilience and secure federal contracts, particularly in sectors like simulation and training. With Orange County experiencing rapid population growth, approximately 800 new residents per week, the summit underscored the urgency of planning for transportation, healthcare, and education infrastructure. AAM was presented as a transformative solution for future mobility, with testing of eVTOLS already underway and expectations for pilotless operations in the coming years. This advancement will require regulatory frameworks, workforce training, and infrastructure planning, aligning with Orange County's vision for multimodal connectivity and innovation-driven growth. Educational institutions such as Full Sail University and healthcare leaders like Advent Health were recognized as key partners in preparing a skilled workforce to meet the demands of these emerging industries. Overall, the summit positioned Orange County as a leader in next-generation transportation and technology, reinforcing its strategy to integrate AAM into regional planning and economic development initiatives.

4.3.2 I-Drive Community Redevelopment Agency (CRA)

The I-Drive CRA manages infrastructure and mobility enhancements along Orlando's International Drive corridor, a major tourism and convention destination. Current efforts include smart mobility pilots, multimodal connectivity upgrades, and preliminary vertiport feasibility studies to support AAM integration in high-demand tourist areas. Planning discussions for these initiatives are ongoing through 2025 and 2026 as part of regional AAM feasibility studies.

I-Drive is a critical economic engine for Orange County. Incorporating AAM into its mobility strategy is being evaluated as part of efforts to alleviate congestion, improve visitor experience, and strengthen the region's tourism competitiveness. Coordination with the CRA ensures any potential vertiport siting aligns with land use and economic development objectives.

⁵⁰ Orange County Government. Orange County Regional Economic Summit: Advancing Workforce and AAM Integration. October 24, 2025. Accessed November 13, 2025. <https://www.orangecountyfl.net/Portals/0/Library/Economic%20Development/docs/ES%20Program%2010.23.25%204.30%20pm.pdf>

5. Central Florida Region AAM Planning

The advancement of Advanced Air Mobility (AAM) in Central Florida requires a unified approach that bridges regional strategies with municipal initiatives. As AAM technologies move closer to operational reality, planning efforts must address infrastructure readiness, regulatory frameworks, and multimodal integration to ensure safe and efficient deployment. Key stakeholders including the GOAA, the City of Orlando, and other Central Florida regional agencies that are collaborating to shape policies, conduct feasibility studies, and align long-range transportation plans with emerging needs.

5.1 Greater Orlando Aviation Authority (GOAA)

5.1.1 AAM Airspace and Operations Tabletop Exercise

GOAA, in partnership with Woolpert, hosted the AAM Airspace and Operations Tabletop Exercise on November 21, 2024, at Orlando International Airport (MCO) which brought together stakeholders from the airport, air traffic controllers, OEMs, and airport operations personnel to evaluate the feasibility of integrating eVTOL aircraft into MCO's complex airspace. The exercise focused on two proposed vertiport sites, East Airfield and Central, and used a CONOPS framework to simulate and assess various arrival and departure routes under both north and south flow conditions.

At the East Airfield site, five routes were evaluated: Yellow (northwest), Orange (southwest), Blue (northeast), Green (north), and Purple (southeast). The Yellow Route was identified as the most problematic due to its proximity to Orlando Executive Airport (ORL) and its intersection with MCO's south flow arrival streams. Air traffic controllers expressed concern over segments of the route that provided less than 1,000 feet of vertical separation from arriving legacy aircraft, which could trigger Traffic Collision Avoidance System (TCAS) alerts and violate wake turbulence separation standards. Although technically below the Class B airspace floor, the route's proximity to arrival paths posed operational risks. In contrast, the Orange Route was considered more viable, as it allowed eVTOLs to cross under MCO arrivals at 500 feet AGL, maintaining the preferred 1,000-foot vertical separation. A revised strategy was proposed in which eVTOLs would cross over runway thresholds at 1,500 to 2,500 feet and then descend in a circling pattern east of the runways, a maneuver deemed feasible by OEMs and controllers.

Departure operations from the East Airfield site were generally less complex. Legacy aircraft typically achieve rapid climb rates, allowing eVTOLs to cross under Area Navigation (RNAV) departure fixes with sufficient vertical separation. Controllers noted that many RNAV procedures include minimum altitudes that could be used to define safe crossing points for eVTOLs, enabling route optimization and standardization.

The Central Vertiport site, located between MCO's parallel runways, presented greater challenges due to limited lateral space and tighter integration with legacy traffic. Routes to the north were particularly constrained, facing similar issues as the East Airfield's Yellow Route. However, the site's separation from the nearest runways, over 3,000 feet, reduced concerns about wake

turbulence during straight-in approaches. Arrival strategies included routing eVTOLs over runway thresholds at 1,500 to 2,500 feet, followed by a descent to the vertiport. Circling maneuvers were more difficult due to spatial constraints. For departures, two options were discussed: allowing earlier turns under RNAV fixes based on procedural minimum climbs and permitting direct overflight of runways during low-traffic periods, provided sufficient gaps in legacy operations exist.

Off-nominal operations, including go-arounds and emergency procedures, were also addressed. The East Airfield site offered sufficient space for standard traffic patterns and emergency landing zones. Participants recommended identifying alternate landing pads or clear zones for emergency use. The Central Site lacked adequate space for traditional go-around patterns, and missed approaches could require rerouting around the airport, potentially adding 20 or more miles to the flight path. OEMs and controllers discussed the feasibility of short reentry approaches and emphasized the need for standardized missed approach procedures to support ATC coordination. The idea of a remote landing pad was also proposed to accommodate emergency scenarios, particularly south of the Central Site where more space is available.

Additional topics included the regulatory status of on-airport vertiports as ATC-controlled surfaces, the potential for eVTOLs to land on conventional runways in emergencies, and the implications of special VFR and nighttime operations. These issues remain under review and will require further policy development and coordination with FAA guidance.

Key takeaways from the exercise included the importance of maintaining at least 1,000 feet of vertical separation from legacy aircraft to mitigate wake turbulence and TCAS alerts, the operational feasibility of overflight arrivals with controlled descent, and the need for designated emergency landing zones and standardized procedures. The Central Site was acknowledged as more complex but potentially viable with tailored routing and procedural safeguards. Participants agreed that continued modeling, simulation, and iterative refinement of the CONOPS are essential for scalable AAM integration.

The next steps identified include developing consensus points from the tabletop, updating the CONOPS and route designs, and initiating further modeling and simulation to validate operational feasibility. These efforts aim to inform future FAA policy, technical standards, and infrastructure planning for vertiport development at MCO and other U.S. airports.

5.1.2 Vertiport Invitation to Negotiate (ITN)

GOAA has initiated a two-phased procurement process to identify a qualified developer and operator for vertiport facilities at two designated sites within MCO. This effort is part of the East Airfield Vertiport Invitation to Negotiate (ITN), which was officially released on March 9, 2025. The purpose of the ITN is to gather proposals and information from potential vertiport developers, operators, and other relevant entities capable of supporting the planning, development, and operation of a vertiport terminals at MCO. Importantly, the ITN also requests vendors to propose a regional network of vertiports, which may have significant implications for site development within Orange County and beyond particularly as it relates to connectivity, scalability, and integration with off-airport locations, not just the airport-based facilities. In Phase One, completed in July 2025, the Aviation Authority shortlisted two respondents: Atlantic Aviation and UrbanV Orlando, LLC, a joint venture between Signature Flight Support and UrbanV. Phase Two will include the issuance of detailed requirements and is scheduled for December 2025, with final evaluations expected to conclude by November 2026.

5.1.3 FAA Human-in-the-Loop (HITL) Simulations – Orlando International (MCO)

In September 2025, Orlando International Airport (MCO) and the FAA completed a three-day HITL simulation at the William J. Hughes Technical Center (Egg Harbor Township, NJ) to examine routine eVTOL operations, notional routing, and tower integration. MCO was publicly cited as only the second U.S. airport to undergo this level of AAM simulation (following Los Angeles International Airport (LAX)), and GOAA highlighted prior tabletop exercises in November 2024 and long-term planning for two potential AAM sites (East Airfield and near the train station). For regions planning near-airport vertiports, the HITL findings provide early operational insights for surface/terminal procedures, candidate corridors, and staffing/technology implications for ATC and airport operators.

5.1.4 Electric Vertical Takeoff and Landing and Advanced Air Mobility Integration Pilot Program (eIPP)

GOAA is actively participating in the FAA’s eVTOL and Advanced Air Mobility Integration Pilot Program (eIPP)⁵¹ application process as part of a collaborative effort to advance AAM development along Florida’s I-4 corridor. This initiative is being led by the FDOT, with key partners including the Hillsborough County Aviation Authority and Embry-Riddle Aeronautical University. The partnership aims to position Central Florida as a national leader in AAM integration by leveraging regional expertise in aviation planning, airspace management, and academic research. The focus of the application centers on developing scalable vertiport infrastructure, harmonizing airspace operations across multiple jurisdictions, and aligning with FAA and NASA planning guidance to support safe and efficient deployment of eVTOL aircraft throughout the corridor.

The DOT and the FAA will evaluate all proposals received (initial deadline of December 11, 2025 was amended to December 29, 2025). A minimum of five participants will be selected, with evaluation criteria favoring proposals that show readiness to launch operations within 90 days of agreement. Once a proposal is selected, the Offeror will enter into an Other Transaction Agreement (OTA) with the FAA. The agreement will establish the responsibilities of the parties, describe the concept of operations to be undertaken, and establish any data sharing requirements. The eIPP shall conclude 3 years after the date the first pilot project becomes operational, unless the Secretary of Transportation determines that an extension is warranted in the national interest. If the FDOT application is selected, there is a likelihood that Orange County will be engaged to participate, given the proximity to GOAA and the potential Orange County vertiport sites identified in the FDOT AAM Business Plan.

⁵¹FAA. Electric Vertical Takeoff and Landing and Advanced Air Mobility Integration Pilot. September 16, 2025. Accessed October 28, 2025. <https://www.federalregister.gov/documents/2025/09/16/2025-17844/electric-vertical-takeoff-and-landing-and-advanced-air-mobility-integration-pilot>

5.2 City of Orlando

The City of Orlando kicked off its efforts for AAM planning in 2021, largely in response to a proposal by Lilium, a German eVTOL manufacturer, and Tavistock Development Company to develop a vertiport within the Lake Nona master planned community. The purpose of the City's AAM Transportation Plan is to plan for the anticipated impacts associated with AAM through a regional connectivity framework. The City has completed two phases. The first identified initial transportation and environmental concerns and opportunities that may occur because of passenger AAM operations in Central Florida. It included an economic impact analysis to identify potential fiscal benefits from a conceptual downtown urban garage vertiport. The City convened two stakeholder engagement meetings with regional transportation and local government partners to discuss a future vision for regional AAM service. Through collaborative visioning exercises, the following concerns and opportunities were identified:

- Vertiport locations, airspace, and safety were the major concerns shared by stakeholders
- Noise, equity, and connectivity were also concerns identified by stakeholders
- Opportunities for AAM in Central Florida include a new future form of Transit Oriented Development (TOD), enhanced sustainability, economic development potential, and transportation improvements

The second phase included an analysis of the City's existing land development code and growth management regulations related to vertiport development. In December 2023, the City hosted an AAM Planning Tabletop Workshop to define roles and responsibilities at local, state, federal levels, as well as the private sector. This Tabletop Workshop was attended by over 100 stakeholders, including representatives from the FAA, FDOT, Orange County staff, GOAA, Kissimmee Gateway Airport (ISM), eVTOL OEMs, and members of the public. Workshop attendees participated in one of four different planning scenarios:

1. New Private vertiport on greenfield property (City vertiport application, rezoning, conditional use permit)
2. New Private vertiport on previously developed property (City vertiport application, conditional use permit)
3. New Vertiport on airport property (FDOT/FAA permitting requirements)
4. Existing heliport (City vertiport application, conditional use permit)

5.3 Other Central Florida Agencies

Regional planning efforts by Central Florida agencies are critical to shaping the integration of AAM into the broader transportation network. These agencies influence infrastructure development, multimodal connectivity, and operational safety through long-range plans, strategic programs, and public safety initiatives. Their work ensures that AAM deployment aligns with regional growth, sustainability goals, and emergency preparedness.

Coordination with Orange County is particularly important because of its role as the economic and tourism hub of Central Florida. Orange County's planning priorities—such as congestion

management along International Drive, connectivity to the Orange County Convention Center, and integration with major transportation corridors—directly impact where and how vertiports and AAM corridors can be implemented. The county’s leadership in workforce development and innovation, demonstrated through initiatives like the Regional Economic Summit, complements regional transportation planning by MetroPlan Orlando, Seminole County, and other agencies. Together, these efforts create a unified framework for future mobility, ensuring that AAM infrastructure is not developed in isolation but as part of a coordinated, multimodal system that supports economic competitiveness, equity, and resilience.

5.3.1 MetroPlan Orlando

5.3.1.1 MetroPlan Orlando 2050 Metropolitan Transportation Plan (MTP)

MetroPlan Orlando⁵² serves as the metropolitan planning organization for Orange, Osceola, and Seminole counties. The 2050 MTP was adopted on December 10, 2025. This long-range plan establishes priorities for the counties, including cost-feasible projects that can support access to future vertiports. Its emphasis on multimodal integration and congestion management creates a foundation for connecting ground transportation networks with future air mobility services, ensuring seamless passenger transfers between modes.

AAM is identified as a Part 3.4.4 Megaregional Travel Trend⁵³ of *Chapter 3: Existing Conditions, Area Profile, and Travel Patterns*. MetroPlan Orlando performed an analysis to compare travel characteristics by mode (car, bus, rail, aviation, and AAM) between the MetroPlan Orlando region and other megaregions (Volusia, Lake/Sumter, Polk, Brevard, Hillsborough, and Southeast Florida). This analysis found that AAM is anticipated to have the shortest travel time between megaregions, but the highest travel cost.

5.3.1.2 MetroPlan Orlando Regional Transportation Systems Management and Operations (TSM&O) Strategic Plan

Finalized in March 2025, the strategic plan⁵⁴ focuses on optimizing traffic flow, deploying intelligent transportation systems (ITS), and improving safety. Recent updates highlight measurable progress, including 88% of retimed corridors achieving reduced travel times and annual CO₂ reductions of 2,400 tons, reinforcing the region’s commitment to efficiency and sustainability. Although the plan does not explicitly reference AAM, its emphasis on regional efficiency, ITS integration, and multimodal support could provide important groundwork for future AAM-related ground-access planning.

⁵² MetroPlan Orlando. 2050 Metropolitan Transportation Plan. October 2025. Accessed November 13, 2025. <https://metroplanorlando.gov/plans/2050-metropolitan-transportation-plan/>

⁵³ *Draft 2050 MTP Chapter 3 | Existing Conditions, Area Profile, and Travel Patterns*. Accessed November 17, 2025. https://metroplanorlando.gov/wp-content/uploads/2050-MTP_Chapter-3_Existing-Conditions-Area-Profile-and-Travel-Patterns_Draft_8-22-2025.pdf

⁵⁴ MetroPlan Orlando. Regional Transportation Systems Management and Operations Strategic Plan. March 2025. Accessed November 13, 2025. https://metroplanorlando.gov/wp-content/uploads/RTSMO_Strategic-Plan_FINAL_03.06.2025.pdf

5.3.1.3 MetroPlan Orlando Transportation Improvement Program (TIP) for 2023–2027

The Transportation Improvement Program (TIP)⁵⁵ is MetroPlan Orlando’s short-range planning document that allocates available funding to specific transportation projects over a five-year horizon. Updated annually, the TIP translates the region’s long-range vision from the MTP into actionable projects, ensuring that billions of dollars in investments advance multimodal connectivity, safety, and sustainability. The current TIP, covering FY 2023–2027, was amended in June 2025 and updated in October 2025 to incorporate projects for FY 2026–2030, reflecting evolving priorities and funding commitments. There are no AAM or vertiport projects identified for funding in the current TIP.

5.3.2 Tampa International Airport 2022 – 2042 Master Plan Update (June 2024)

The Tampa International Airport (TPA) 2022 – 2042 Master Plan Update⁵⁶ from June 2024 includes two sections on AAM. The first is Chapter 4.10 Advanced Air Mobility Facilities and the second is Chapter 5.8 from the Alternatives Analysis (Chapter 5).

In Chapter 4, TPA defines AAM (including eVTOL) and frames on-airport vertiports primarily for passenger shuttle/air-taxi and cargo, leveraging existing, regulated airport infrastructure. Facility sizing is derived from forecasted business-traveler demand and current FAA/industry guidance (FAA Engineering Brief 105; AC 150/5390-2D; ACRP 113). Core components include a FATO/TLOF pad, a hold pad, 3–6 aircraft parking positions, charging, and a small passenger terminal (or GSE area for cargo). The planning assumptions (e.g., 10% of first/business-class O&D passengers as initial users; 3 pax per departure; 14-hour day; 20-minute turns; 100 sq ft per person in terminal) yield one pad, 3–6 parking stands, and a 6,000–12,000 sq ft terminal—about a 13-acre footprint overall (terminal not required for cargo). This section effectively sets the “must-haves” any TPA site must be able to accommodate.

In Chapter 5, TPA develops conceptual site plans for passenger and cargo vertiports using FAA EB-105 geometry—one FATO/TLOF (50-ft controlling dimension → 100-ft FATO and 150-ft safety area), approach/departure surfaces at 1:8 slopes aligned with runway flows, a hold pad, 3–6 parking positions, and a terminal sized from the same business-traveler assumptions.

Nine potential vertiport locations are identified across airfield and landside assets, including at-grade sites near General Aviation (GA)/cargo (Sites 1–5) and rooftop/garage concepts near passenger terminals (Sites 6–9: North Terminal Complex, Long-Term, Economy, and Rental Car Center). For the initial cut, any site with a vertiport pad within 2,500 feet of an active runway is eliminated to avoid runway throughput/capacity impacts—this removes Site 1 and the four garage/terminal-area sites (6–9). The remaining Sites 2–5 are evaluated on:

- Meeting Chapter 4 facility requirements runway throughput/airfield capacity interactions
- Impacts to runway throughput or airfield capacity
- Potential wake turbulence impacts

⁵⁵ MetroPlan Orlando. Transportation Improvement Program FY 2025/2026 – FY 2029/30. November 12, 2025. Accessed November 13, 2025. <https://metroplanorlando.gov/wp-content/uploads/FY26-FY30-Transportation-Improvement-Program-Amended-November-12-2025.pdf>

⁵⁶ Hillsborough County Aviation Authority. TPA 2022–2042 Master Plan Update. June 6, 2024. Accessed December 1, 2025. <https://www.tampaairport.com/business/tpa-master-plan-documentation>

- Potential obstructions
- Landside accessibility (to terminals for passenger use or to cargo/GA for cargo use)
- Land-use impacts.

Based on this matrix and coordination with the airport sponsor, Sites 3 and 5 are recommended to be preserved for future vertiport accommodation. Site 2 is dropped (better for future cargo/support, possible instrument meteorological conditions IMC impacts, and retention-pond conflicts). These criteria and outcomes give a clear, transferable siting screen for preserving on-airport envelopes that won't degrade airfield performance while maintaining strong landside access.

5.3.3 TPA Air Taxi Test Flight

On November 23, 2023, TPA hosted the first-ever eVTOL aircraft test flight at a major U.S. airport and the first in Florida. The event was conducted in partnership with Volocopter, a Germany-based leader in UAM and eVTOL technology.

The crewed, all-electric aircraft—commonly referred to as an “air taxi”—completed an eight-minute flight from TPA’s airfield. Attendees included local officials such as Tampa Mayor Jane Castor and St. Petersburg Mayor Ken Welch, along with aviation and transportation industry representatives.

TPA established a committee to study eVTOL infrastructure and integration within Tampa Bay’s airspace. This effort includes collaboration with state, federal, and industry partners to address operational concepts, FAA safety requirements, and regulatory considerations for potential deployment within the next five to ten years.

Urban air mobility represents a new class of aircraft designed for short- to medium-range flights, offering quiet, safe, and sustainable operations to reduce congestion and lower aviation’s carbon footprint. Volocopter has previously conducted flights at three U.S. locations; Tampa marks its first demonstration in Florida and the first at a major U.S. airport. The company has also announced a partnership with Bristow Group to begin eVTOL operations in Florida in the near future.

6. Other U.S. Regions

6.1 The Miami-Dade TPO Urban Air Mobility Policy Framework & Strategic Roadmap

The Miami-Dade TPO Urban Air Mobility Policy Framework & Strategic Roadmap⁵⁷ positions UAM/AAM as an addition to the county’s multimodal network and ties vertiport site selection to federal and state guidance. Early vertiport candidates are to be screened through FAA

⁵⁷ Miami-Dade Transportation Planning Organization (TPO). Urban Air Mobility Policy Framework and Strategic Roadmap: Final Report. November 2023. Accessed November 12, 2025. <https://miamidadetpo.org/library/studies/mdtpo-urban-air-mobility-policy-framework-and-strategic-roadmap-final-report-2023-11.pdf>

Engineering Brief 105A guidelines (for touchdown and lift-off areas, safety areas, and surrounding airspace), the protection of surrounding land uses, and be evaluated against noise, visual, and safety impacts, with the County updating zoning and development codes accordingly.

The report stresses that existing airport land-use policy skews toward legacy aircraft and that eVTOL aircraft will differ in noise and emissions, so Miami-Dade should take an incremental approach (for example, conditional-use permits for early sites with frequent reassessment) while standards mature. Coordination to define safe, point-to-point corridors is emphasized, as is aligning vertiport siting with the Long-Range Transportation Plan and transit programming (for first/last-mile access).

For near-term siting and deployment, the document prioritizes airport-anchored or existing heliport locations for proofs of concept and early operations, then expands to off-airport sites as regulations, utilities, and demand maturity. It recommends: (1) identifying initial use cases and operating locations, (2) updating zoning/building codes to explicitly accommodate vertiports and charging/fueling facilities, (3) verifying utility capacity (grid upgrades and ESS space), and (4) setting clear review parameters covering airspace, land-use compatibility, equity, and safety/security. It also calls for infrastructure interoperability so different aircraft can share vertiports and chargers, avoiding “one-off” facilities that fragment the network. The report proposes designated testing areas at airports or helipads where procedures/airspace already exist and notes the Everglades Jetport (Dade-Collier TNT) as cited by the County for tests.

A UAM Working Group has been established to coordinate siting, data, permitting, funding, and community engagement across the County’s 34 municipalities and with utilities, the FDOT, FAA/NASA, and private OEMs. Implementation timelines sequence these actions from pre-OEM phases (screening, code updates, outreach, utility assessments) through initial deployments and later scaling, keeping recommendations flexible as standards and technology evolve.

6.2 Georgia Department of Transportation (GDOT) AAM Blueprint and Action Plan (2024)

GDOT’s plan⁵⁸ frames the state’s role as (1) setting a clear regulatory path for vertiports, (2) equipping cities/counties with a practical vertiport siting playbook, and (3) building tools and partnerships that shorten the path from concept to site.

On the regulatory side, GDOT points to updating Georgia’s airport licensing rules (O.C.G.A. §32-9-8 and Chapter 672-9) so vertiports can be consistently licensed and regulated statewide—reducing uncertainty for applicants and avoiding a patchwork of local rules. It draws on recent state actions nationwide (e.g., Utah licensing and aircraft registration) as models for clarifying roles and preventing exclusive rights at vertiports—policies that shape where and how public-use sites can be designated. The Action Plan also proposes a statewide Vertiport Site Selector Tool (joint Georgia Power + GDEcD) that would let cities upload locally relevant data so developers and agencies can quickly shortlist feasible sites (and surface energy constraints up front). This tool explicitly aims to simplify site identification for both greenfield and retrofit concepts.

⁵⁸ Georgia Department of Transportation AAM Blueprint and Action Plan. April 2024. Accessed November 19, 2025. <https://www.dot.ga.gov/InvestSmart/Aviation/AAM/Blueprint%20and%20Action%20Plan%20-%20GDOT%20AAM%20Study.pdf>

Because power is critical for AAM operations, GDOT pushes integrating AAM with statewide electric-mobility planning, so candidate sites co-locate with strong grid capacity and future charging build-outs. To pilot the full siting workflow, GDOT recommends a demonstration route that pairs an airport-ready site with a greenfield vertiport. The goal of this program would be to develop an AAM route from start to finish to identify gaps and solutions for AAM in the state, as well as to provide proof of concept for AAM in Georgia.

Governance-wise, the plan establishes a standing AAM Working Group and suggests subcommittees (utilities, airports, local government, emergency response) to resolve siting issues like approach protection, fire/life-safety, and grid interconnects—so local screening and permitting can move faster with shared templates and expectations. For local governments working on site feasibility, GDOT has created an accompanying Community Guidebook⁵⁹. It gives planners a step-by-step way to review zoning, map aviation facilities and approach paths, assess land-use compatibility, and set “community-first” policies—so candidate sites can be screened early for fit with airspace, land use, and neighborhood impacts.

6.3 Los Angeles (LA DOT) Urban Air Mobility Policy Framework Considerations (2021)

LADOT’s framework⁶⁰ for vertiport siting is within three screening categories: connectivity, land-use compatibility, and community impact. It proposes that candidate sites should be at or near existing mobility hubs (rail/bus corridors, major arterials, airports/heliports, medical and logistics centers), with robust first/last-mile access and curb management.

Land-use compatibility emphasizes co-locating with activity centers while avoiding sensitive uses and establishing Vertiport Influence Areas (VIA) that bundle safety/protection zones, noise mitigation, and airspace clearance for final approach and takeoff. Height-limit controls, multimodal integration requirements, and utilization/time-of-day caps are proposed to address safety, noise, and ground access capacity, with preferred corridors aligned over existing transport corridors.

For process and governance, the framework calls for an interagency working group (planning, transportation, building/safety, fire, utilities, airport authorities) and a community Advocacy Advisory Committee to shape where vertiports are acceptable, how frequently they operate, and how benefits are shared. Site approvals are suggested to layer environmental review, equity audits, and ongoing data reporting to monitor noise, safety events, operations, and access outcomes. LADOT also outlines permitting checklists for developers/operators, encourages adaptive reuse of rooftops/garages where feasible, and suggests a Vehicle Classification System to tie allowable sites/operating hours to actual noise and performance.

⁵⁹ [AAM Community Guidebook](https://www.dot.ga.gov/InvestSmart/Aviation/AAM/Community%20Guidebook%20-%20GDOT%20AAM%20Study.pdf). April 2024. Accessed November 19, 2025.

<https://www.dot.ga.gov/InvestSmart/Aviation/AAM/Community%20Guidebook%20-%20GDOT%20AAM%20Study.pdf>

⁶⁰ Los Angeles Department of Transportation. Urban Air Mobility Policy Framework Considerations. September 13, 2021. Accessed November 13, 2025. <https://ladot.lacity.gov/sites/default/files/documents/ladot-uam-policy-framework-considerations.pdf>

6.4 State of Utah

6.4.1 Utah DOT (UDOT) UTRAC - Urban Air Mobility Land-Use Planning for Vertiports StoryMap (2021)

The Urban Air Mobility Land-Use Planning for Vertiports ArcGIS StoryMap⁶¹ was built for UDOT in 2021 and is an interactive, GIS-driven screening tool built for Utah’s Wasatch Front that helps planners answer the question: where could vertiports plausibly fit on the ground?

The tool suggests a basic preliminary screen: capability filter (areas that are off-limits or unsafe) → suitability scoring → parcel short list that can be adapted by other counties to create a transparent, criteria-based short list for vertiport locations before moving into deeper due diligence and permitting. Suitability scores combine five lenses: built environment, natural environment, regulatory requirements, technology limits, and community values. This basic framework continues to be used by UDOT.

6.4.2 Utah AAM Infrastructure and Regulatory Study (2022)

The Utah AAM Infrastructure and Regulatory Study⁶² establishes the policy and legal tools that make local vertiport siting feasible and consistent. It recommends creating a formal AAM program office under UDOT with responsibilities that directly affect site selection: aerial corridor planning, vertiport permitting, and aircraft registration. It also proposes a pragmatic “sandbox” approach to allow use of public facilities (rail stations, parking decks, rooftops, rest areas) as simple initial vertiports, which points jurisdictions toward early, high-access sites that already have multimodal connections and public control.

For local governments, the report calls for explicit permitting and business-licensing pathways for AAM uses and, crucially, zoning language that recognizes takeoff/landing and adopts vertiport overlay zones with influence areas to protect navigable airspace and manage compatible land uses. It further recommends aviation easements (including acquisition mechanisms) to protect approach/departure surfaces where zoning alone cannot ensure safety. Together, these tools pre-clear the legal environment so site screens won’t be derailed later by incompatible underlying zoning.

6.4.3 Feasibility of Vertiport Siting and Land Use Planning (2025): A Guide for the Process of Planning UAV/UAM Vertiport Locations (Jan 2025)

UDOT’s ‘Feasibility of Vertiport Siting and Land Use Planning⁶³ is guide for screening and comparing locations using GIS-based capability and suitability mapping. It recommends first mapping where vertiports are legally or physically not possible (capability) and then scoring the

⁶¹ Utah Department of Transportation Research & Innovation Division. Urban Air Mobility Land-Use Planning for Vertiports (ArcGIS StoryMap). November 8, 2021. Accessed November 13, 2025. <https://storymaps.arcgis.com/stories/a5e89074c5f74cbb94e3f14850b694c2>. Utah Department of Transportation Research &

⁶² Utah State University. Feasibility of Vertiport Siting and Land Use Planning: A Guide for the Process of Planning UAV/UAM Vertiport Locations. Technical Report UT-25.03. January 2025. Accessed November 13, 2025. <https://rosap.ntl.bts.gov/view/dot/80399>

remaining areas by multi-criteria suitability to compare candidate parcels. The report illustrates parcel-level maps built for the Wasatch Front, with rules that incorporate buffers, sensitive uses (e.g., schools, public safety facilities), obstacles, and roadway setbacks; it then aggregates parcel scores (e.g., via zonal statistics) to support land acquisition or adaptive reuse decisions.

This document also introduces the idea of vertiport sizing, sorting into vertihubs, vertiports, and vertistops. This consideration could open smaller more urban siting possibilities, especially for smaller delivery-only AAMs.