CITY OF ORLANDO

TAMPA BAY SMART CITIES ALLIANCE

City Planning for AAM: A Collaborative Approach

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ORLANDO ADVANCED AIR MOBILITY

CITY OF ORLANDO

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What is Advanced Air Mobility (AAM)?

- Electric Vertical Takeoff and Landing (eVTOL) vehicles
- Passengers and cargo at low altitudes
- Potential to fly +/-150 miles on a single charge
- 150-200 mph
- Mature AAM network will consist of vertiports located on rooftops or garages in urban settings, hospitals, airports, and other major multimodal transportation hubs throughout the CFL region.

ORLANDO FUTURE-READY CITY MASTER PLAN

- Mobility Strategy: Develop a plan to engage private sector eVTOL takeoff and landing companies to connect activity centers within the Central Florida region (city taxi model) and connect Orlando to other cities within the southeast.

ORLANDO ADVANCED AIR MOBILITY

- **Purpose**: for the City of Orlando to plan for the anticipated impacts associated with AAM through a regional connectivity plan

- This AAM Transportation Plan will position the City with additional future-ready mobility options by identifying the vertiport locations to support the movement of residents, businesses and visitors.

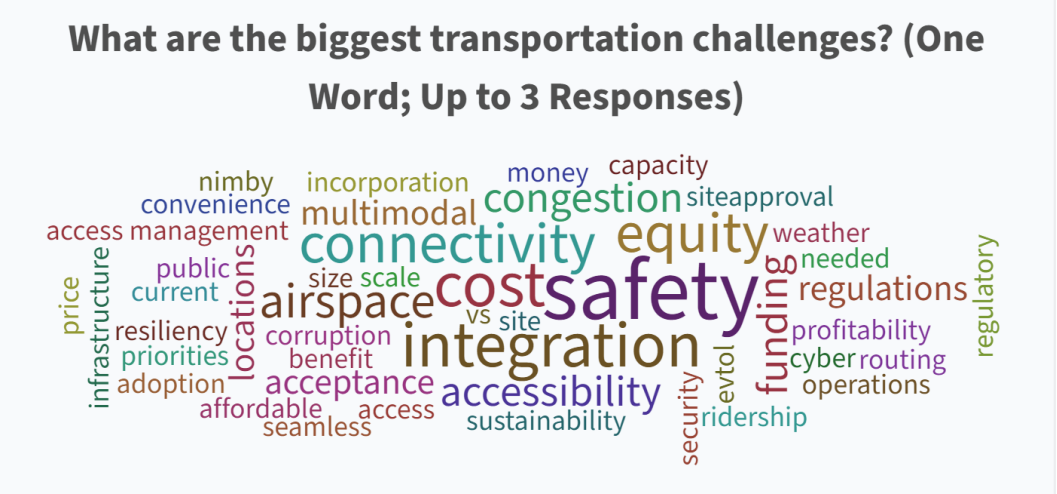
Why is it important for the City?

- Cities and counties must be at the forefront of the conversation on AAM and be active participants in policy formulation
- No one knows the City better than ourselves, and no one is better positioned to understand the potential impacts of AAM
- Enhanced mobility and transportation alternatives
- Continued innovation with our regional partners
- Equity considerations
- AAM/UAM is regional in nature and must be considered with regional partners

[1] *Source: Community Air Mobility Initiative (CAMI) Advanced & Urban Air Mobility Impact and Training*

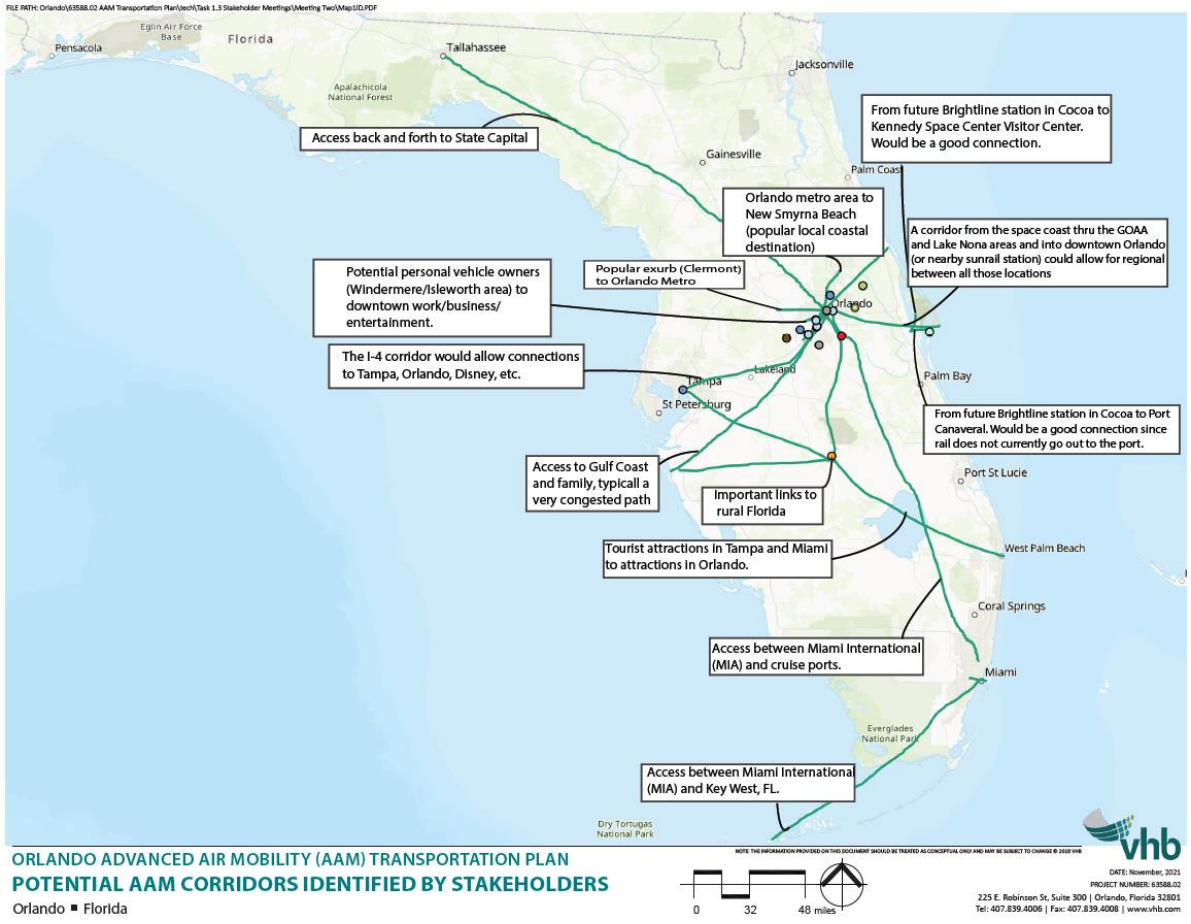
Risks of Not Planning

- Not prepared for safety, legal, nuisance, privacy, infrastructure, and other issues
- Reacting to vendor/operator requests for land use permitting, tax incentives, etc. on a one-by-one basis without set policy and code.
- Community acceptance and education on AAM
- Reacting to new state policies (not being at the table when decisions are made)
- Lack of support for elected officials and City staff serving on AAM working groups at the national level with the National League of Cities, NASA, and other organizations.
- Equity needs may not be addressed



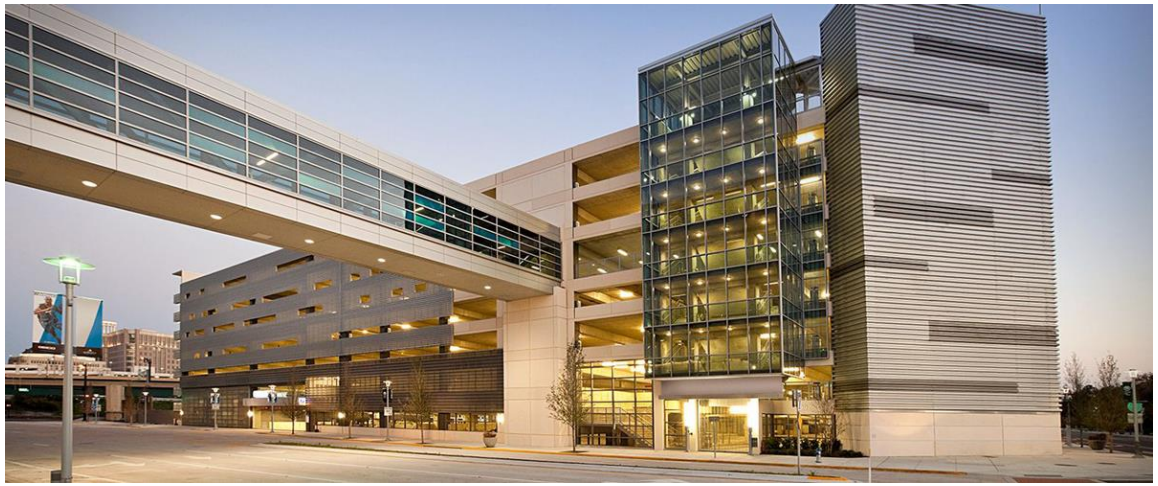
ORLANDO ADVANCED AIR MOBILITY

- Phase One
  - Technical Memorandums on Regional Transportation and Environmental Challenges and Opportunities
  - Economic Impact Study of Geico Garage
  - NASA Community Planning Annex
  - Stakeholder outreach and regional visioning
- Phase Two
  - Zoning and regulations review
  - Agency coordination
- Phase Three
  - Travel Demand Model
  - Vertiport target locations
  - Additional stakeholder outreach



Economic Impact Analysis

- An economic impact analysis was conducted at the Geico Garage to analyze:
  - Direct impacts: capital impact and direct job creation, parking revenue
  - Indirect impacts: adjacent business activity, and
  - Induced impacts: response by the economy to the vertiport



IMPLAN model results

Economic Impacts (during operations)			Fiscal Impacts, Tax Revenue (during operations)		
	Employment	Value Added (GDP) (1)		10 years	20 years
City of Orlando	50	$22,319,795	**City of Orlando**	**$2,833,310**	**$4,373,283**
Orange County	95	$8,258,229	Orange County	$9,593,416	$14,807,671
Florida	57	$5,300,192	Florida	$29,287,264	$45,205,605
Total	202	$35,878,216	Federal	$24,595,239	$37,963,351

Notes:

(1) Gross Domestic Product (GDP) is defined as the total value of all domestic final goods and services produced within a specified period (typically a year). This amount is equal to annual passenger revenue estimates for the first full year of operations. The annual value-added to the economy resulting from the vertiport operations at the local, county, and state level is summarized

Not modeled, but must be considered

- Loss of rooftop parking revenue
  - Approximately 300 spaces would be repurposed
  - Estimated $600k to $1M lost annual parking revenue
  - Must renegotiate existing parking lease agreement (500 spaces per NBA game) with Orlando Magic

- Ground Lease Agreement
  - NASA Urban Air Mobility market study (2018) assumes **$16-26/SF**
  - Estimate of $2.1M annual revenue to City

- Potential cost and revenue sharing options between City and AAM operator

Key Takeaways

- There will be positive economic benefits (employment, taxes, GDP), but it is too early for the City to invest in infrastructure without a partner

- The potential costs ($30M capital cost, $0.6-$1M/year parking revenue loss,) outweigh the direct fiscal impacts back to the City ($4.3M tax revenue over a 20 year period, as estimated by IMPLAN).

- To move forward, the City should negotiate an agreement with an AAM operator, detailing
  - Cost-sharing responsibilities
  - Revenue sharing (if applicable)
  - Performance measures
  - Ground lease payments back to the City.

- The Agreement will help the City understand the return on investment (ROI) before making capital investments.

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FDOT Recommended Best Practices

1. Assign a lead staff member for AAM
2. Review FDOT State of AAM
3. Review zoning ordinances
4. Map out aeronautical use facilities
5. Identify incompatible land uses
6. Establish a benchmark for existing ambient noise levels
7. Establish waste, hazardous materials, and pollution prevention requirements
8. Establish AAM Policies that put the community first
9. Update Zoning ordinances

AAM
FLORIDA DEPARTMENT OF TRANSPORTATION

Advanced Air Mobility Roadmap

FDOT AVIATION

June, 2022

City of Orlando Vertiport Approval Process

1. Chapter 58, Part 4P Vertiports City of Orlando Land Development Code
2. Zoning Districts
3. Conditional Use Permit

Image from: Air Force Fun Helicopter Tours North

1. Chapter 58, Part 4P Vertiport Standards

- Sec 58.850 – 58.853 of the Land Development Code regulates Vertiport permitting in the City of Orlando (Ordinance 9-16-1991)

- The classifications of vertiports defined in Chapter 8 of this City Code as Class I, II and III and the subclassifications thereof as Subclass A, B and C shall be deemed to be the **same respective classifications and subclassifications as are contained in the Federal Aviation Administration (FAA) booklet entitled "Heliport Design Guide," AC 150/53901A, dated November 5, 1969**. All recommendations set forth therein relating to the location, design, construction, visual markings, and fire protection for such vertiports shall be the requirements of this Chapter; provided, however, that a Variance therefrom may be granted in accordance with Chapter 65, Part 2J if the Federal Aviation Administration advises the City that such variance will not render such vertiports unsafe.

Sec. 58.851 - Standards for the Approval of Vertiports.

- No permit for any vertiport shall be approved unless the reviewing authority finds that the following standards have been met:
  - *Feasibility.* That the proposed vertiport is operationally feasible.
  - *Safety.* That the FAA considers the proposed vertiport to be safe for the conduct of the type and volume of aeronautical activity proposed to be conducted thereon.
  - *Location and Specification.* That the location and the plans and specifications of the proposed vertiport conform to the requirements of Section 58.850.
  - *Frequency.* One landing and/or take-off in a twelve (12) month period shall not constitute a vertiport.
  - *Fire Prevention.* That such plans and specifications conform to all other requirements of law relating to construction and fire prevention.
  - *Air Turbulence.* That, if the proposed vertiport is to be elevated on a building or other structure, that air turbulence which may be created by rotorcraft landing and taking off there from will not cause dust, sand, water or other material to fall on any property other than that controlled by the applicant.

Sec. 58.851 - Standards for the Approval of Vertiports

- **Need**. That the applicant has a **bona fide need** for such vertiport and that the **public welfare will not be adversely affected** by the establishment and operation of the vertiport taking into account the following factors:

(a)The applicant's need to establish the vertiport;

(b)The **availability of other vertiports** which the applicant could use in lieu of the proposed vertiport and their proximity to the site selected for such vertiport;

(c)The proximity of the vertiport to areas which could be used as **emergency landing areas** in the event of mechanical malfunction of rotorcraft using such vertiport;

(d)The proximity of the vertiport to **fire stations**;

(e)The proximity of the vertiport to **tall buildings other navigation hazards** and existing uses which would present a **public safety hazard** in case of an aircraft crash;

Sec. 58.851. - Standards for the Approval of Vertiports.

Need (continued)

(f)The proximity of the vertiport to **residential areas, nursing homes, assisted living facilities and schools**;

(g)The proximity of the vertiport to **airports and to the flight patterns of aircraft** using such airports;

(h)The **benefits to be derived by the public** from the establishment and operation of the vertiport, if any;

(i)The **nuisance effect**, if any, of the vertiport and its associated rotorcraft operations on vehicular traffic;

(j)The **environmental impact** of the vertiport, if any, including, but not limited to, **noise pollution**; and;

(k)The proximity of the vertiport to **storage facilities for combustible or explosive materials** or to other hazards.

Sec 58: Procedural requirements

- **Submittal of Application**

  (a)The name and address of the applicant;

  (b)The **type, class and subclass of the vertiport** proposed to be established;

  (c)**Description of the rotorcraft support facility** proposed to be constructed, if any;

  (d)A study prepared by a **recognized aviation consultant** showing that the proposed vertiport is **operationally feasible**;

  (e)A **map** showing the location of the proposed vertiport and the **proposed approach zones, lateral clearance zones and emergency landing areas** referable thereto;

  (f)**Evidence that a notice of landing area proposal has been filed with the FAA and that the FAA considers the proposed vertiport safe** for the conduct of aviation activities proposed to be conducted thereon;

  (g)**A complete set of plans and specifications** for the proposed vertiport, prepared in conformity with the provisions of Section 58.850 of this Part; and

  (h)Statement by the applicant setting forth the **estimated number of monthly rotorcraft landings** proposed to be conducted thereon.

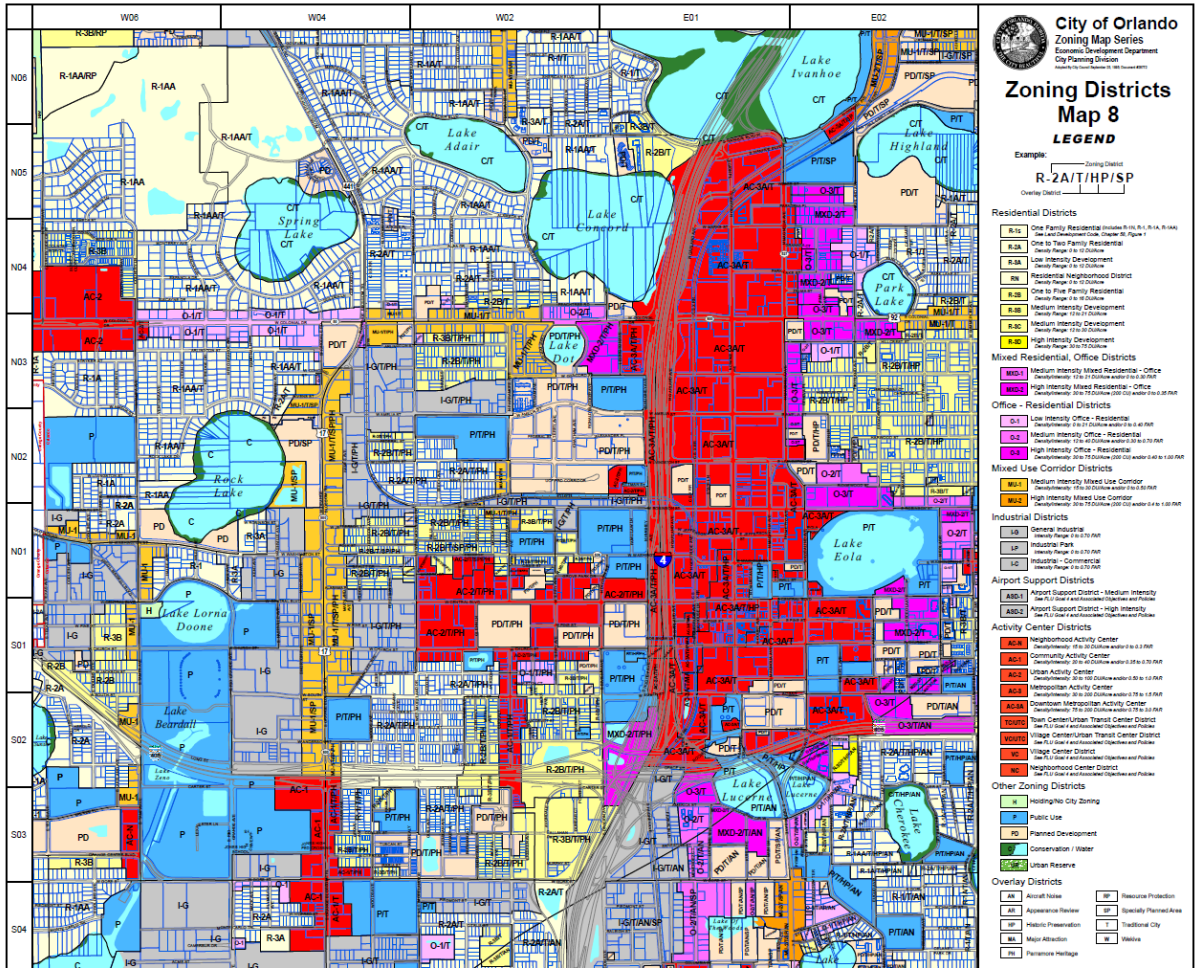
- **GOAA review** to "advise the City of its opinion respecting the desirability or non-desirability of issuing the requested permit, together with the reasons for its opinion.

- **Certificate of Occupancy**

2. Applicable Zoning Districts

- Table FG-2B: Table of Allowable uses lists Vertiports as a **Conditional Use** in the following Zoning Districts:
  - AC-1: Community Activity Center
  - AC-2: Urban Activity Center
  - AC-3: Metropolitan Activity Center
  - I-G: Industrial General
  - I-P: Industrial Park

- Rezoning application (and Growth Management Plan amendment, if necessary) required for all other zoning districts



3. Conditional Use Permit

- Sections 65.280 – 65.288 of the City of Orlando Land Development Code provides **standards and procedures** for the granting of Conditional Use Permits where expressly authorized by the provisions of this Chapter, through a **legislative review** by the **Municipal Planning Board and City Council where they find that certain conditions have been met**.
  - Pre-application meeting
  - Submittal
  - Municipal Planning Board (MPB) hearing
  - City Council hearing
  - Conditions of Approval

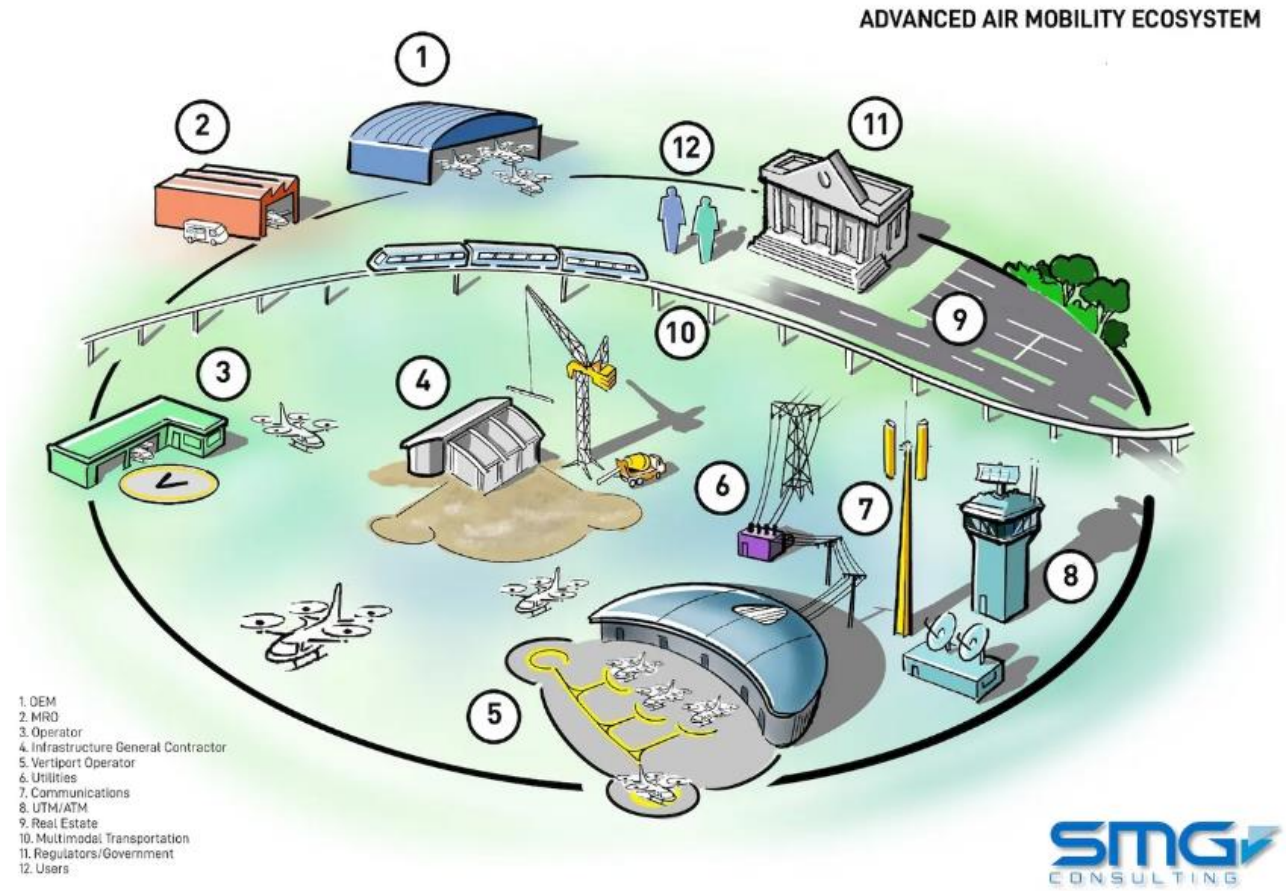
Stakeholder Engagement

Key Questions

- Where should vertiports be located
- Who owns and operates vertiports
- How do we ensure safe operations and integrations into existing airspace and ground transportation networks
- What happens when we move out of the regulatory phase, what community partners do we need to engage
- How do we regulate, measure and enforce external impacts (noise, visual pollution…)
- How does approval of a Vertiport affect property rights

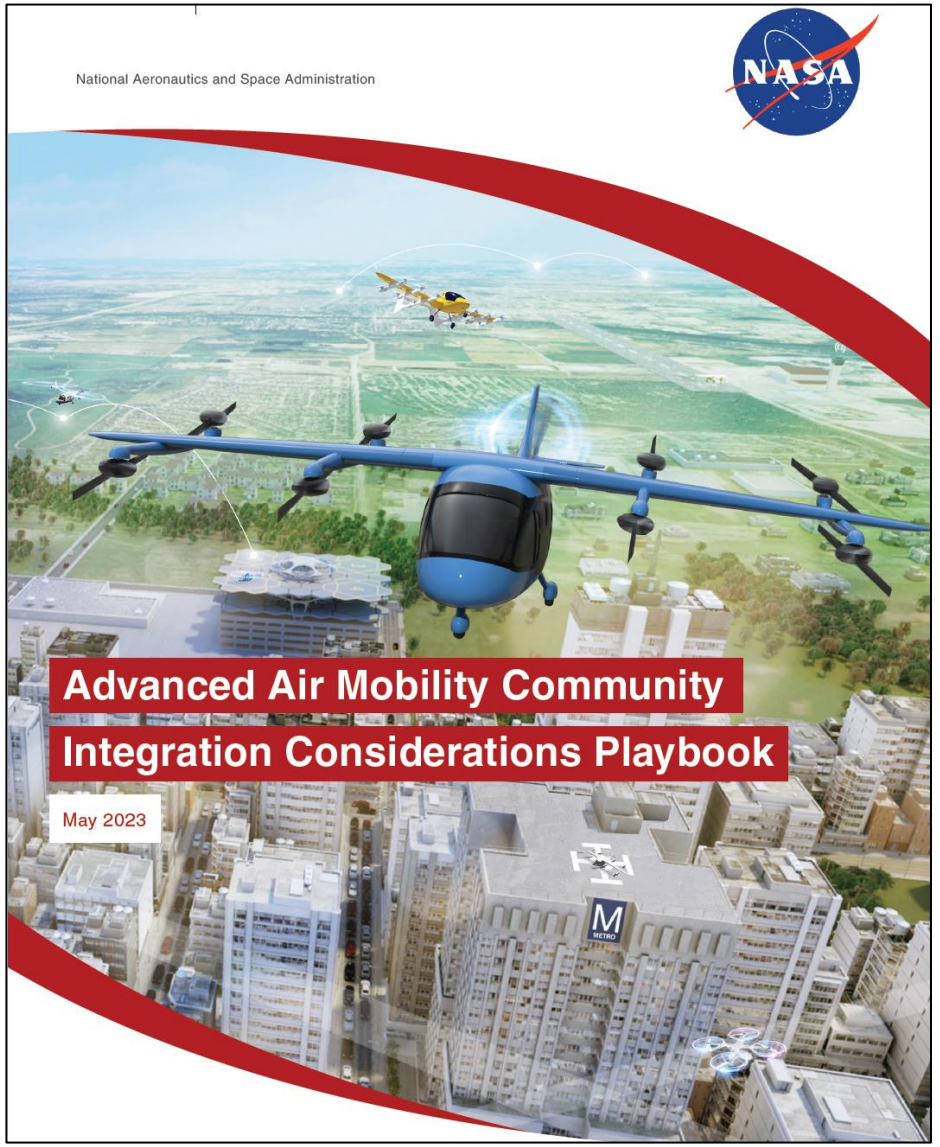
City Focus for Central Florida

- Integrating early operations with room to scale
- Orlando Economic Partnership
- Theme Parks
- Full Ecosystem approach
  - Job Creation
  - Simulation
  - Clean Energy
  - Advanced Manufacturing



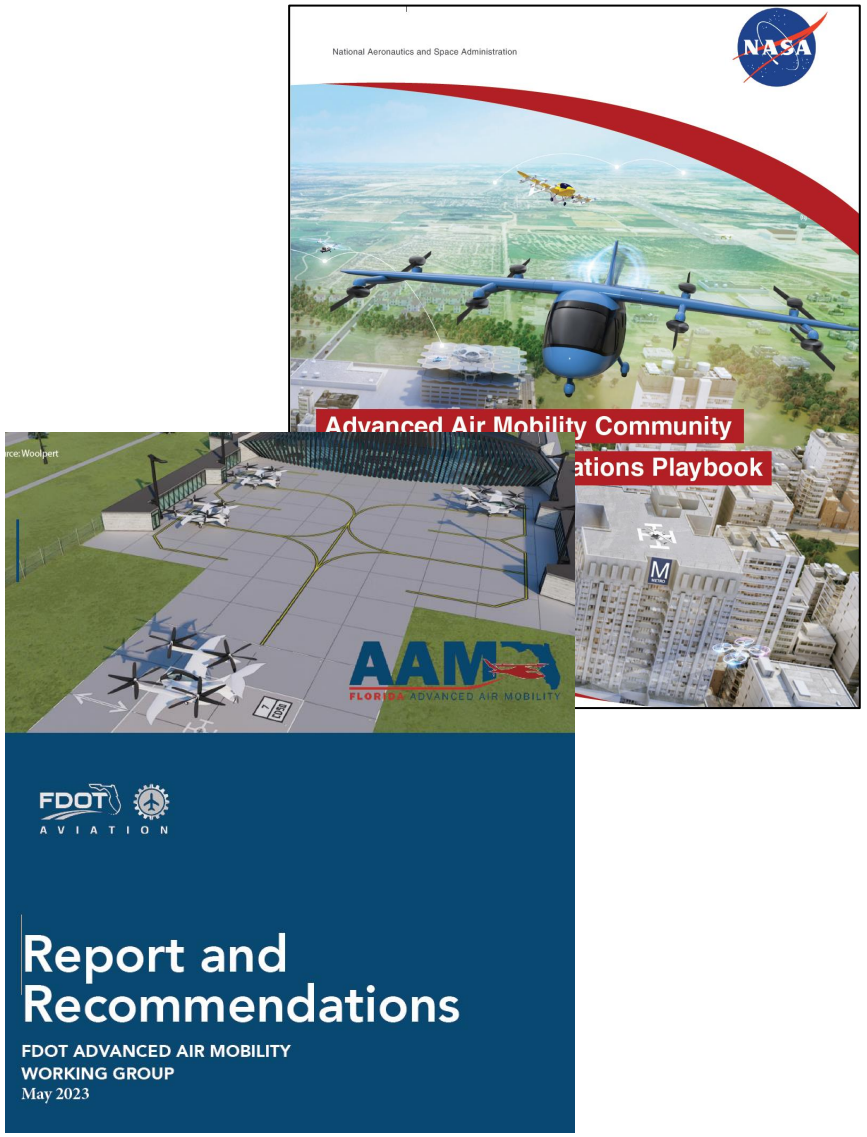
NASA Partnership

- Partnership with NASA and other transportation agencies, airport authorities, vehicle manufacturers, and universities
- Workshops to share ideas, best practices, and lessons learned
- Establish criteria for locating future vertiports
- Use case scenario planning
- Other partners: Ohio DOT, Massachusetts DOT, Minnesota DOT, and North Central Florida Council of Governments DOT
- Community Integration Considerations Playbook



Resources

- NASA – Community Integration Considerations Playbook
- FDOT – AAM Working Group – Policy Report and Recommendations
- American Planning Association – Planning for AAM Guidebook
- NAS Transportation Research Board (TRB) - New Users of Shared Airspace
- Conferences – APA National Conference, NASAO National Conference, International Civil Aviation Organization, Berkley Future of Aviation, Smart Cities Connect



Thank You!
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orlando.gov/futureready