

The Aerospace & Defense Forum

**Santa Clarita Valley Chapter Meeting  
February 20, 2024**

**Community Integration Considerations for  
Advanced Air Mobility Operations**

Starr Ginn – NASA Advanced Air Mobility Lead Strategist

7:15 – 9:00 AM

0

The Aerospace & Defense Forum

**Who We Are...**

- An 13-year-old global aerospace and defense leadership community of over 2,500 professionals that facilitates communication, collaboration, and commerce relative to the business of A&D
- Nine chapters – Los Angeles, San Fernando Valley, Santa Clarita Valley, South Bay, Orange County, San Diego, Arizona, Dallas-Ft. Worth, and Ventura County.
- Conduct monthly meetings with presentations, panels and tours with industry leaders focused on some aspect of the business of A&D
- Our practice is to make copies of the business cards and provide them to the attendees. If you wish to do so, please place your cards in the basket



1

The Aerospace & Defense Forum

**Santa Clarita Valley Economic Development Corporation  
Santa Clarita Valley Chapter  
Host and Sponsor**



Jey Wagner  
President & CEO  
SCVEDC

scvedc.org

2




The Aerospace & Defense Forum

**Community Integration Considerations for  
Advanced Air Mobility Operations**




Starr Ginn – NASA Advanced  
Air Mobility Lead Strategist

3

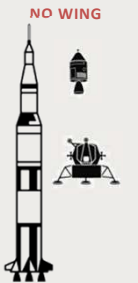







**Aerospace and Defense Forum – Santa Clarita Valley Chapter**  
Starr Ginn – NASA Advanced Air Mobility Lead Strategist  
20 Feb 2024

4



**Electric Vertical Take-Off & Landing (eVTOL)**

NO WING	FIXED WING	ROTARY WING	FLAPPING WING
			
<b>EVTOL</b> Combines fixed wing, rotary wing, electric power, and automation technologies to create a new hybrid form of flight			
Generally, trends towards increasing maneuverability / decreasing speed			

5

### Strong Domestic AAM Industry Base

According to a 2021 Deloitte study the U.S. AAM market could reach \$115 billion annually, potentially creating 280,000 jobs

6

### Advanced Air Mobility (AAM) Mission

Safe, sustainable, affordable, and accessible aviation for transformational local and intraregional missions

7

### NASA's AAM Playbook Series

<https://www.nasa.gov/feature/nasa-is-creating-an-advanced-air-mobility-playbook>

8

### AAM Playbook: Automation

Search "NASA AAM Playbook" to find lots of cool videos, including one for automation

9

### Urban Landing Options

#### NASA NC-3 High Volume Vertiports OV-1 High Density Vertiplex Contributions

HDV technologies address key UML-4 challenges and will enable vehicle-airspace-vertiport automation

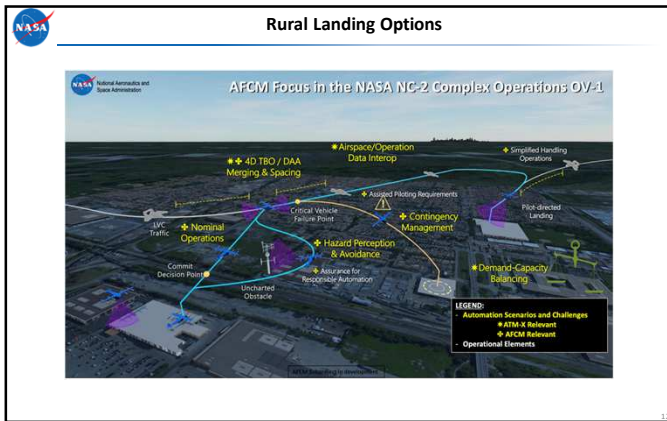
10

### Future Autopilots will fly using 4D-trajectories

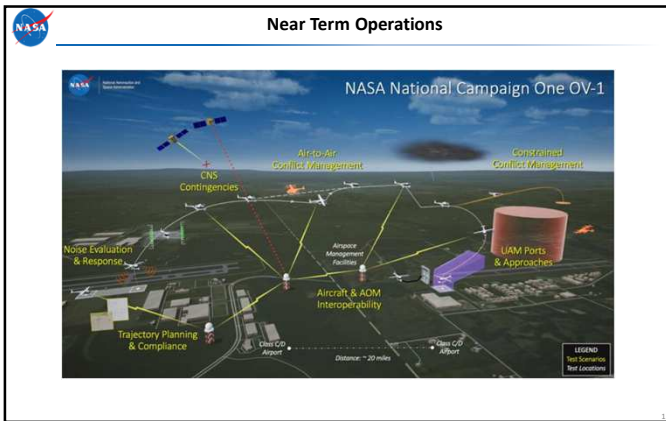
- Aircraft will specify their location in a small tube of airspace at any given time for the duration of the flight and make updates as needed
  - This is sometimes called "intent data" and is typically specified in the EUTL format
  - "Efficient Universal Trajectory Language" (EUTL)

In the future eVTOLs will need to share not just where they currently are, but also where they plan to go

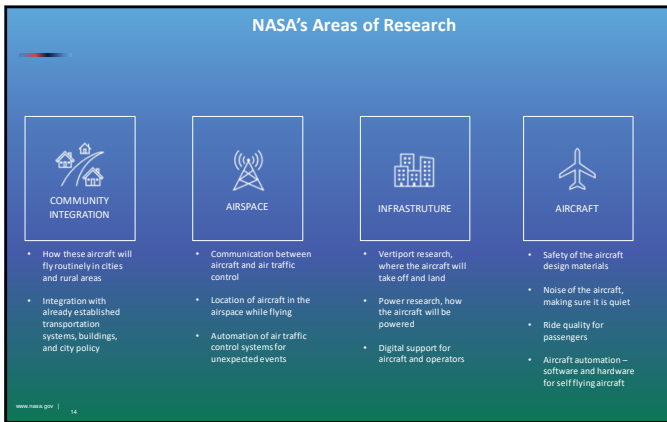
11



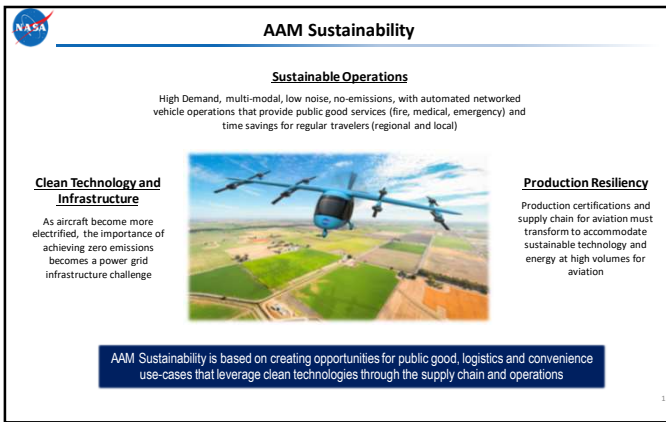
12



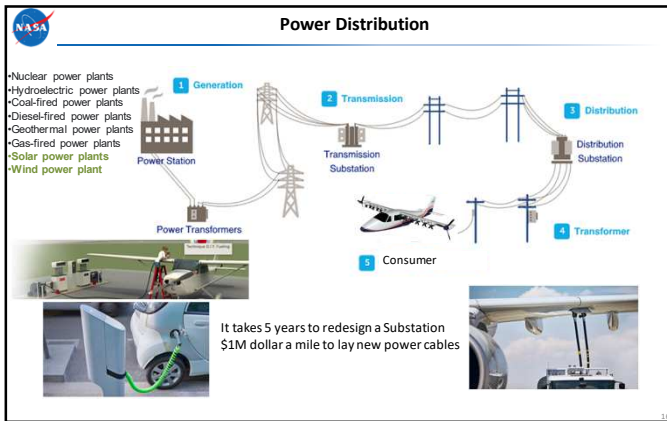
13



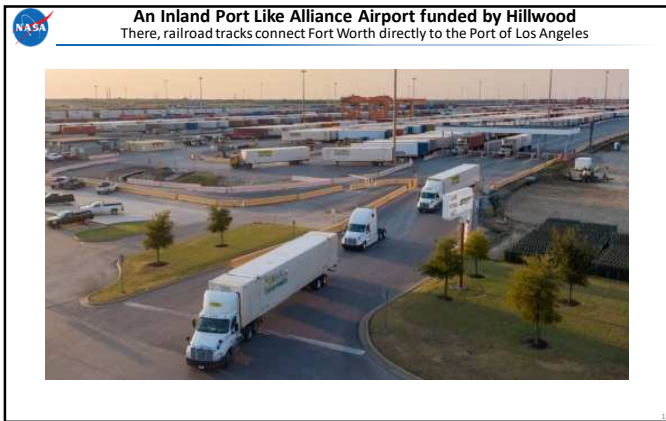
14



15



16



17

### Energy Distribution

Inspiration for Nano Electro Flow Cell's for Aircraft

- Non-Flammable water based fluid
- Liquid fuel can be shaped to aircraft mold-line
- Heat Transfer for cooling
- No Thermal heat signature as in combustion
- No Electro Magnetic Interference signature
- No coupled Power & Energy issues like Li-ion
- Quick Charging (Fueling and De-Fueling)
- Repeat charging without degradation of material

Gen1 System Level 130 Wh/kg  
Gen2 System 600-850 Wh/kg  
X-57 System Level 126 Wh/kg (18650 cells)

Green energy used to charge NEF and distribution concept

Use fuel returned to NEF processing center

NEF distributed to end users

Charged

Discharged

NEF processing center

NEF fueling station

NEF transportation

Hydroelectric dam

Solar panel

Wind turbine

INFLUIT ENERGY

18

### City and State Partnerships

NASA is working with cities and states to brainstorm the ways that air taxis and drones, and the infrastructure for this new transportation system, could be integrated into city planning.

The goal is to develop a joint document to describe how this would work in various locations.

- Massachusetts Department of Transportation
- Minnesota Department of Transportation
- The North Central Texas Council of Governments Department of Transportation
- The Ohio Unmanned Aircraft Systems Center of the Ohio Department of Transportation
- City of Orlando, Florida

The team plans to illustrate this concept by using computer modeling software to analyze what elements a city would need to make this successful.

19

### NASA SBIR/STTR PHASES

PHASE I  
Idea Generation  
\$150,000  
SBIR 6 months  
STTR 13 months

PHASE II  
Prototype Development  
\$850,000  
24 months

PHASE III  
Infusion/  
Commercialization  
Non-SBIR  
Funding

I-CORPS

TABA

POST PHASE II OPPORTUNITIES

PHASE II - E/X  
Reqs matching funding  
up to \$375,000  
6 to 12 months

PHASE II SEQUENTIAL  
Occasional opportunity (not routine)  
Varying award amount  
24 months+

CCRPP  
Reqs matching funding  
\$500,000 to \$2,500,000  
24 months

I-CORPS

20

## The Aerospace & Defense Forum

# Q&A

21

## The Aerospace & Defense Forum

### Upcoming Chapter Webinars/Meetings

- February 21: **"Dare Mighty Things Together: Exploring Space with JPL"**, Laurie Leshin, Director, Jet Propulsion Laboratory | National Online Forum webinar
- March 20: **"Decarbonizing Aviation Through Real Action, Today"**, Kevin Noertker (Co-founder and CE) and Kam Akhter, Mechanical Design Engineer, Ampaire | National Online Forum webinar

22

## The Aerospace & Defense Forum

- Individual Membership is \$350/year and provides free attendance at all A&D Forum meetings and webinars. Membership is free for those not located near one of the nine operating chapters.
- Recordings of over 250 chapter and webinar presentations are available for download by A&D Forum members.
- You can join the mailing list of any chapter for free, which will also provide you the monthly A&D Forum Newsletter.
- Opportunities to sponsor chapters or webinars are available.
- Our practice is to make copies of the business cards and provide them to the attendees. If you wish to do so, please place your cards in the basket

For more info: <https://aerospacedefenseforum.org/>

23

