

Advanced Air Mobility

An Overview

Northwestern

*“Once you have tasted flight, you will walk the earth with your eyes turned skywards,
for there you have been, and there you will long to return”*

Leonardo daVinci, c. 1480

Image Courtesy NASA



About PS&S

Northwestern



- Established 1962
- 295+ Professional Staff
- Full In-house Design Capabilities:
 - Architecture / Engineering
 - Land Development
 - Environmental / Energy-Utility
- Diverse Clientele:
 - Public & Private Sectors
 - UAM Task Force Since 2019

Service Lines

Northwestern



**ARCHITECTURE
INTERIOR DESIGN**



**SITE /CIVIL
ENGINEERING**



**STRUCTURAL
ENGINEERING**



**MEPF
ENGINEERING**



**ENVIRONMENTAL
ENGINEERING**



**ENERGY
SERVICES**

Market Sectors

Northwestern



UAM Core Team

Northwestern

- ➔ Experienced, Cohesive, Collaborative...Together
- ➔ Creative, Innovative, Passionate
- ➔ Extensive Relevant Design & Aviation Experience
- ➔ Team Designers Uber Elevate Los Angeles Vertiport 2019-20
- ➔ Principal Involvement, Industry Collaboration



Harry Ted Osborne, AIA
Sr Vice President
A/E Group



Charles Clauser, AIA
Sr Director, Architecture
UAM Lead



Jennifer Ganley, LEED AP
Project Manager
Architecture



Daniel Balto, AIA
Sr Director, Architecture



Blake Sherwood, AIA
Sr Architect, Architecture



Stephen Ewing
CRM, Energy Utility



CONGESTION



POLLUTION



DIMINISHED
QUALITY OF LIFE

URBANIZATION

TRAFFIC



STRESS



NOISE



RESHAPE THE CITIES OF TOMORROW...



SIMPLER



CLEANER



SAFER



IMPROVE
QUALITY
OF LIFE



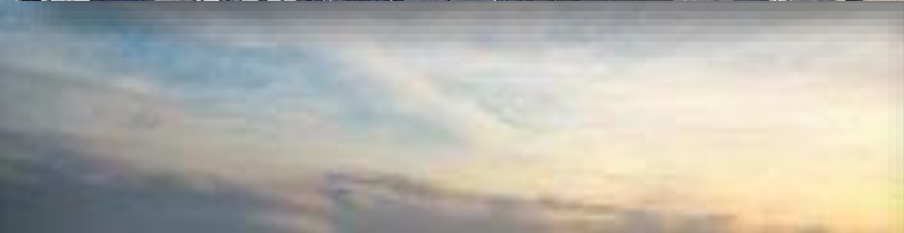
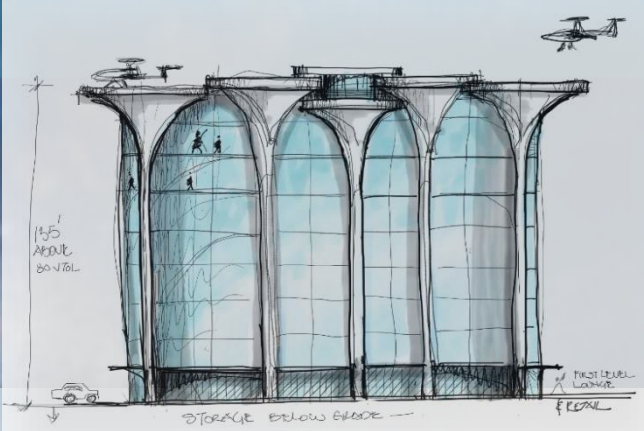
LESSEN
TRAFFIC
CONGESTION



MAXIMIZE
HUMAN
WELL BEING

Vertiport Concepts

Northwestern



Vertiport Concepts

Northwestern



Uber Elevate 2020

Vertiport Concepts



Industry Engagement

Northwestern

- NASA Transformative Vertical Flight Working Group Committees
- Member: Vertical Flight Society (VFS)
- Member: National Business Aviation Association (NBAA)
- Strategic Partners: Jaunt Air Mobility & Varon Corporation
- Strategic Partners: Five Alpha & HeliExperts
- Vertiport Infrastructure Panelists: VFS & Varon Think Tanks
- American Helicopter Museum & Education Center Board Member
- Advisors to NIA, SAAP, NARTP, ACEA at ACY



The Future of Air Mobility

Northwestern

- Aircraft & Systems Maturation
- Operational Regs & Certifications
- Vertiport Design Standards
- Airspace Regulations
- Air Traffic Control Corridors & Routing
- Utility & High-energy Electric Availability



Courtesy Joby Aviation

The Future of Air Mobility

Northwestern

- Public Assurance / Acceptance | *CAMI*
- Local Zoning Ordinance Adoption
- Safety, Security, & 10⁻⁹ Reliability
- Industry Support
- Access For All
- Multi Mission
- Cleaner, Quieter



Courtesy Archer Aviation

Differences – Helicopters & eVTOL

Northwestern

HELICOPTER CHARACTERISTICS

PROS:

- High Payloads Possible
- Powerful Engines
- Vertical Takeoff & Landing
- Multiple Roles

CONS:

- High Noise Profiles
- Carbon-based Fuels
- Numerous Inherent Hazards
- Expensive to Operate

eVTOL CHARACTERISTICS

PROS:

- Distributed Electric Propulsion
- Zero Carbon Emissions
- Vertical Takeoff & Landing
- Multiple Roles for Aircraft Size

CONS:

- May Be Operationally Complex
- Low Payloads Currently
- Range Limited By Battery Capacity
- Requires High Energy Recharging

THE WORLD AWAITS...

PS&S

THANK YOU

Northwestern