

James W Tilghman AIA

Clinical Associate Professor

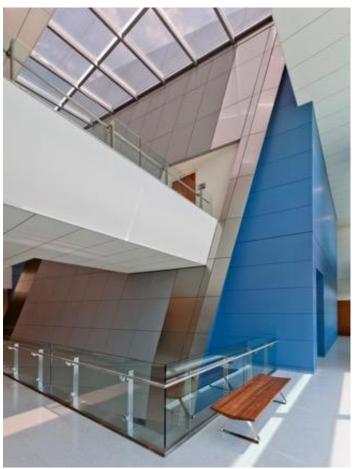
Principal W₁₂ U+ Design Partners

SPRING 2023: ARCH 408 Topical Studio ARCH 797 Thesis Proseminar













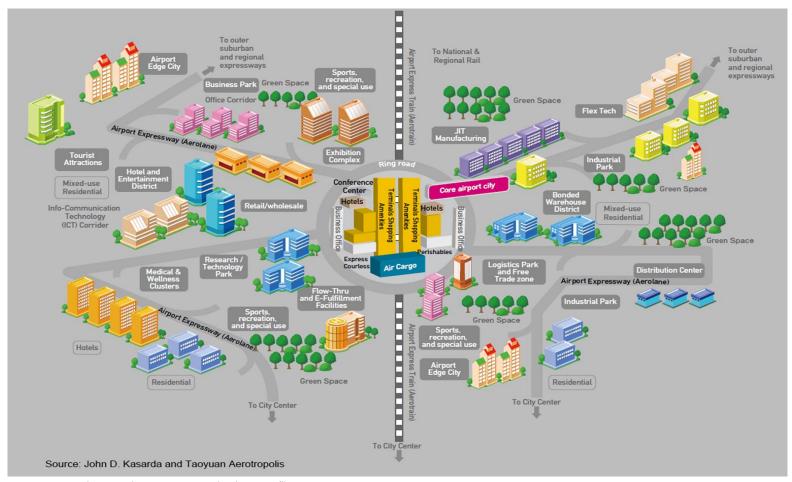


Figure 46: Aerotropolis Master Plan. Source: Aerotropolis: The Way We'll Live Next

AEROTROPOLIS CONCEPT: CORE AIRPORT CITY AND

CONCEPT

CONCEPT

AIRPORT

RESEARCH

TOURISM

INDUSTRIAL

RECREATION

RETAIL

RESIDENTIAL

BUSINESS

GREEN

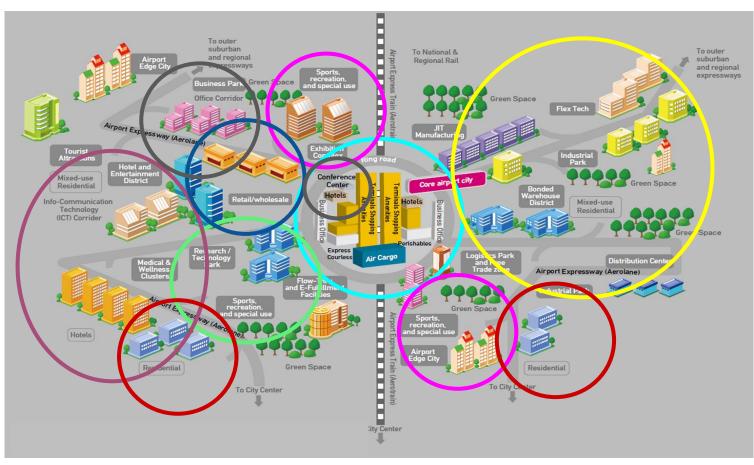


Figure 47: Aerotropolis Program Diagram over original graphic by John D. Kasarda

AEROTROPOLIS: Concept Multiple Centers of Activity

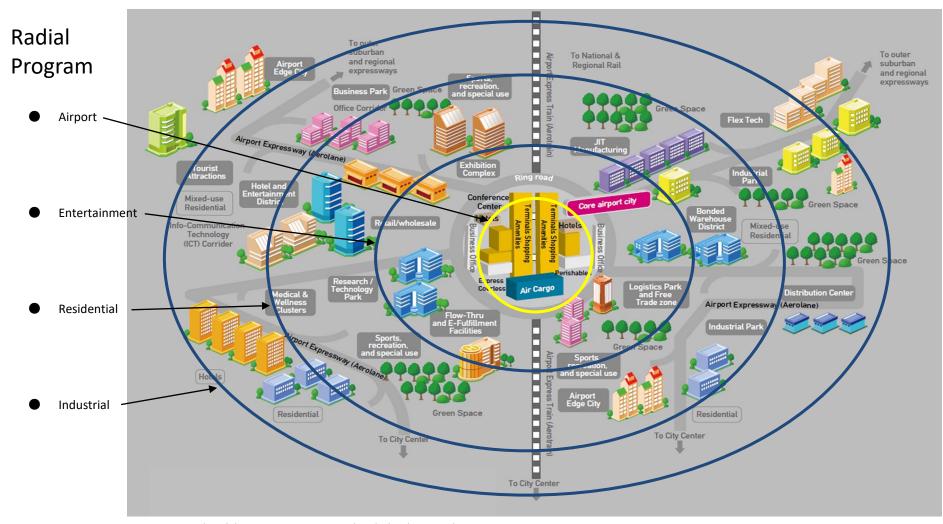


Figure 48: Aerotropolis Radial Program Diagram over original graphic by John D. Kasarda

AEROTROPOLIS: Concept

Aerotropolis – Initial Comparison and Parallels to CP

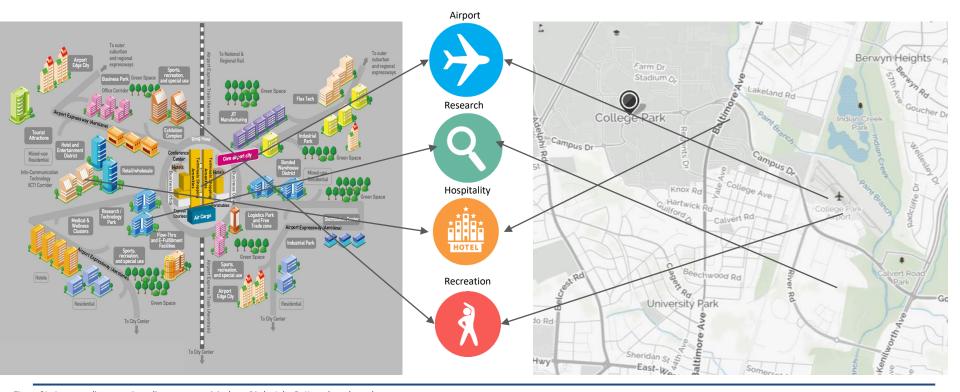
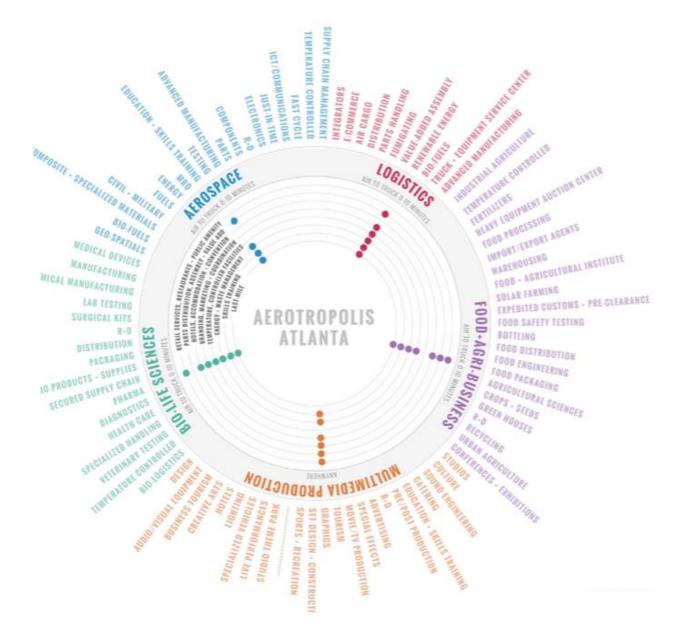


Figure 61: Aerotropolis comparison diagram over original graphic by John D. Kasarda and google maps

AEROTROPOLIS as a Transportable Concept

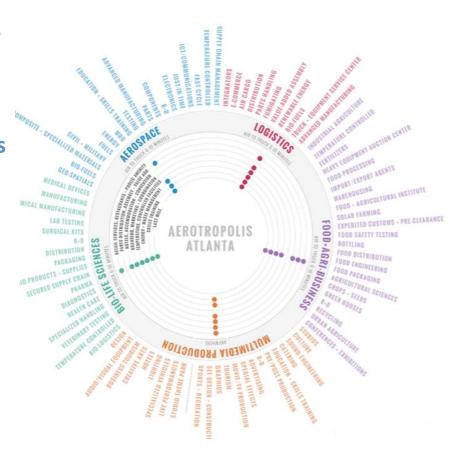


AEROTROPOLIS ATLANTA BLUEPRINT

aerotropolis-atlanta-blueprint-final.pdf (aeroatl.org)

The Aerotropolis

....embodies the convergence of diverse programs and experiences that serve the growth of communities evolving in the context of emerging technologies



The Aerotropolis

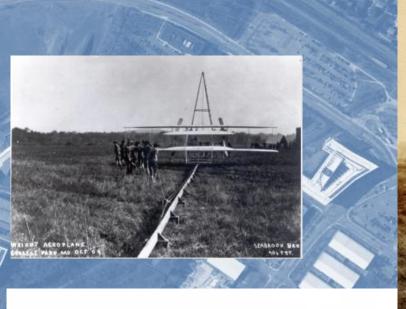
multiple strategic goals and principles into a conceptual framework that fosters discussion, captures the imagination and communicates the vision of the (emergent Community)"

Aerotropolis 6.0: Vertical Communities AL





The Aerotropolis as the convergence of diverse programs and experiences that serve communities evolving in the context of emerging technologies







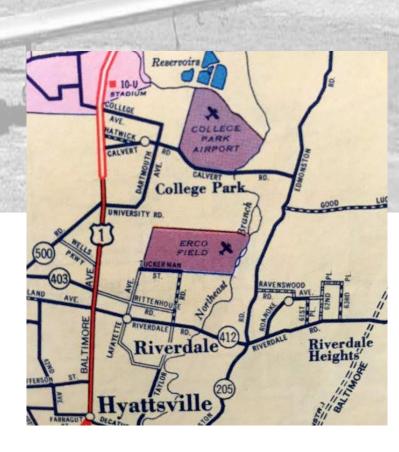


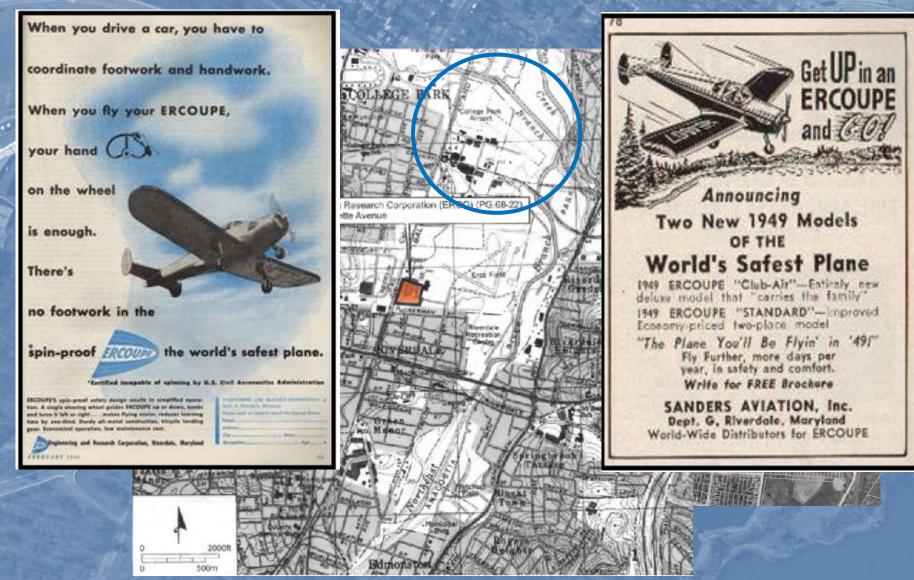
"COLLEGE PARK AIRPORT" IMAGES FROM STULLICH AND BRYANT, COLLEGE PARK, 44.

ERCO FACTORY

- Engineering and Research Corporation (ERCO) was started by Henry Berliner in 1930 and was a pioneer in helicopter development with the experimental Berliner Helicopter.
- In 1937, Berliner purchased 50 acres of land in Riverdale, Maryland near the College Park Airport and built the large ERCO factory and airstrip in 1942 a mile south of it.
- One of ERCO's most significant achievements was the development of the Ercoupe aircraft.









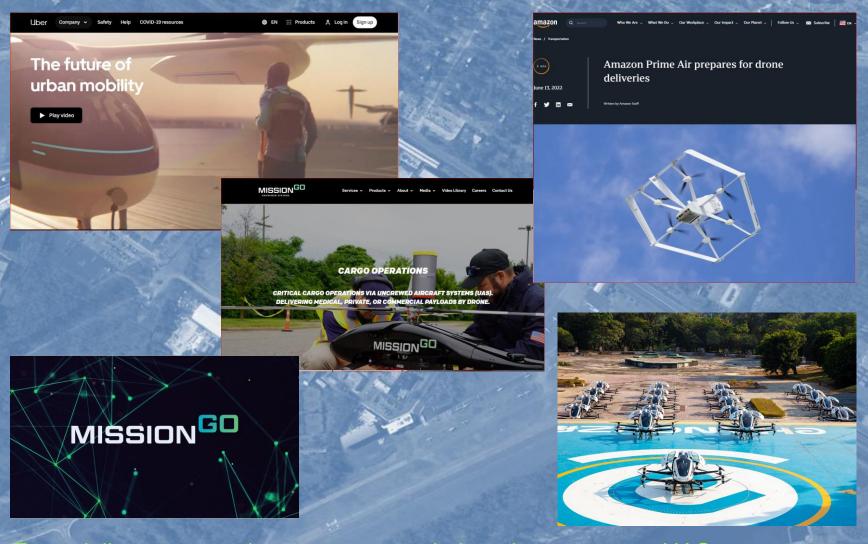




UMD has a significant commitment in research capability in College Park and regionally:

UMD UÁV RESEARCH 2023

UAS Global State Of The Art; 2023.



From delivery copter-drones to personal air-taxi prototypes – UAS vehicles are at the forefront of a new aviation revolution that promises to fully transform the built environment.

THE ARCH OF INNOVATION:

The question of the Convergence of UAW Technology and the Built Environment in the Discovery District







ERCOUPE

"PURPLE LINE"

UAS SYSTEMS: VOLOCOPTER

AEROTROPOLIS STUDIO THEMES

INTELLIGENT DENSITIES VERTICAL COMMUNITIES

This would allow for a wide variety of choices in configurations.





















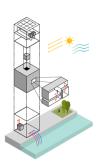




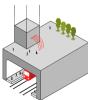


Carbon neutrality and energy efficiency are achieved not through one easy solution but by incremental practices.

We must find ways to share not just public space, but amenities and energy resources. Adaptability should be considered our keyword: to be intelligent every new building should be able to relate to its context in terms of size and energy contribution.

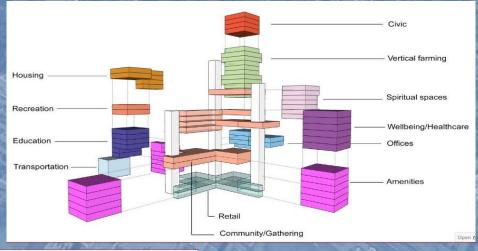


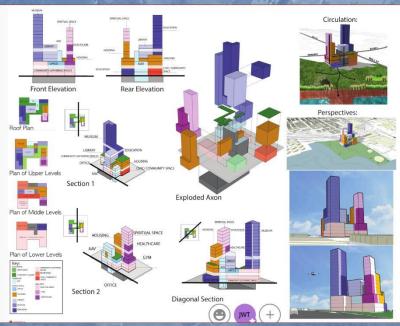


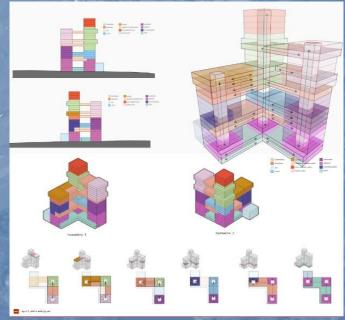


INTELLIGENT DENSITIES / VERTICAL COMMUNITIES

nemes: Programming for Convergence





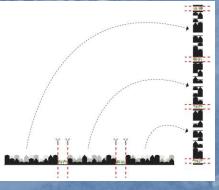


AEROTROPOLIS 6.0 VERTICAL COMMUNITIES SPRING 2023

Themes: Community and Inclusivity Themes: Community as Nexus of Interaction.









AEROTROPOLIS 6.0 VERTICAL COMMUNITIES CP SPRING 2023

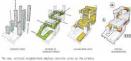
Themes: Governance and Equitable Access. Community/Neighborhood/Programming

Garden in the Machine



As part of the exhibition Foreclosed: Rehousing the American Dream at the Museum of Modern Art, Studio Gang worked with a team of experts on subjects from finance to environmental remediation to develop Garden in the Machine, a proposal to revialize the inner-ring suburb of Cicero, Illinois.

Core, a thrown faithry teen, but onlygifed with the increases of indicating requestes and human. As a may, the length invergent psyclation confirmants to deal aim conditions of unempriser, powers, and even connected single dealers. In other in the Machine elementaristies be not considered to the manners of the manners of the control of the control of the manners of the manners of the best and real influence can be inversiged on the best three of the control of



The new, vertical neighborhood employs concrete cores as the prisony vertical structure, which combin neillities and circulation. Pecclaimed transes seawing from core to care fine a network of shored commandly appear. Private law-ord-wink with any mounted shore and believe the transes and can be expended or contracted as femilies chances.



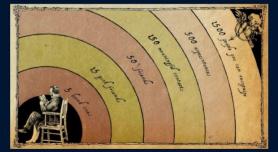
Dunbar's Number in Vertical Communities

Office Sizes limited to 150 people

- Gore-Tex
- Swedish Tax Authority

Physical Proximity

- Community Development





Lafont, Emmanuel. "The most intimate circle is just five loved ones, reaching a maximum of 1500 people you can recognise." |

https://www.bbc.com/future/article/20191001-dunbars-number-

Themes: Biomorphic Dimension of Community Themes: Role of Organics in Wellness Environments









AEROTROPOLIS 6.0 VERTICAL COMMUNITIES AL SPRING 2023

Themes: Autonomous Mobility Impacts on Communities





Transportation

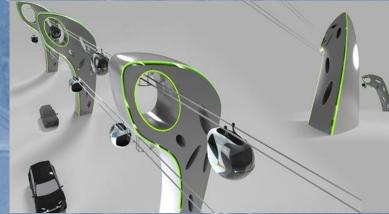


Figure 74: Flyover Pods Rendering. Source: "Concept Public Transport System for 2030," Future Technology



Figure 73: Urban transportation pod. Source: "Future City," Urban Mobility and Public Space. (Aug 2016): http://ming3d.com/DAAP/ARCH4001FA16/2016/08/26/128/

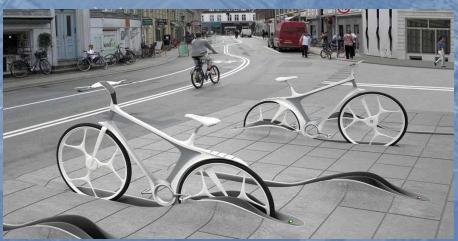


Figure 75: Futuristic Bike Share. Source: "Bike Share System: in Copenhagen the bike sharing of the future," Close-Up Engineering. (Jul 2016): https://building.closeupengineering.it/en/bike-share-system-copenhagen-the-bike-sharing-of-the-future/9421/

AEROTROPOLIS 6.0 VERTICAL COMMUNITIES CP SPRING 2023

Themes: Research Contemporary Vertical Spatiality



AEROTROPOLIS 6.0 VERTICAL COMMUNITIES CP SPRING 2023



STRÄVAN

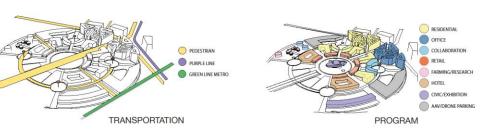


ARCH403

2018



STRÄVAN MEANING "ENDEAVOR" IN SWEDISH EMBODIES THE SPIRIT OF THIS BUILDING THE NEW EXHIBITION HALL STRIVES TO ACHIEVE SIMPLICITY AND RESPONSIVENESS IN A WORLD 30 YEARS INTO THE FUTURE.







REDICAL CONTEXT THE PUTURE IS NIGHT AERIAL VIEW EXPERIENCE AND APPROACH

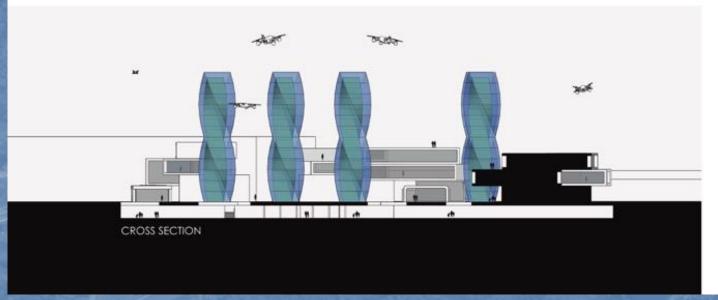
College Park/ University Site Context- Airport with Commercial area 2019

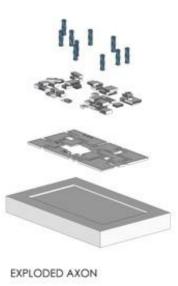


College Park/ University Site Context- Airport with Commercial area 2019



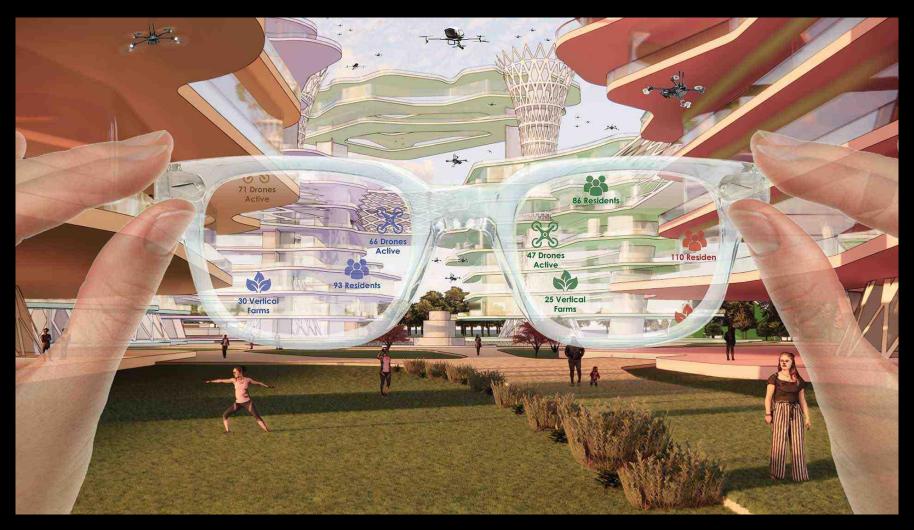






College Park Aerotropolis Team Farm: Vertical Farming Concepts

Aerotropolis 5.0 2022: The Realm, AERO, The Array, The Enlightenance



ARCH 408 SPRING 2023 AEROTROPOLIS 6.0: VERTICAL COMMUNITIES

THE REALM SPRING 2022 Aerotropolis 5.0



AEROTROPOLIS 6.0 VERTICAL COMMUNITIES SPRING 2023

THE ARRAY SPRING 2022 Aerotropolis 5.0



The term Array is defined as, "an impressive display or range" and "an ordered series or arrangement." Taking that idea into practice, this community is designed to display cross-disciplinary research for the general public organized into ambiguous categories. rather than being restricted to specific disciplines. The overall master plan consists of program-specific masses, connected through a central circulation; connecting back to the mathematical imagery of an array.

Equitable Access Statement:

Our community aims to combat the stigma that discovery is restricted to professionals, and create a symbiotic relationship between the public and academic community. The Array is united in the pursuit of discovery in four categories: Growth, Sustainability, Creativity, and Exploration, which expose the public to new ideas and offer scholars monitored applications of their research. The implementation of UAV mobility will break the boundaries of traditional accessibility to allow access for all.

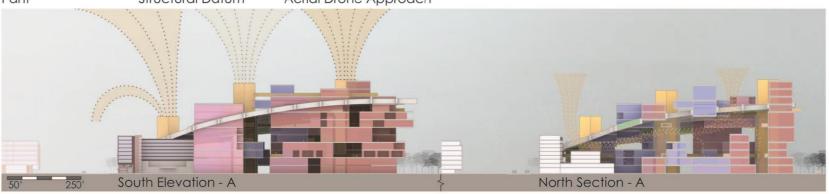
Governance Statement:

The Array's activities rely on a board of directors associated with the programmatic categories, which tie in to UMD's Sustainability, STEM, and Art initiatives. The construct's accessibility to all community members is made possible by broadcasted mobility paths and entry points on-site, and UAV-Pedestrian integration zones within the

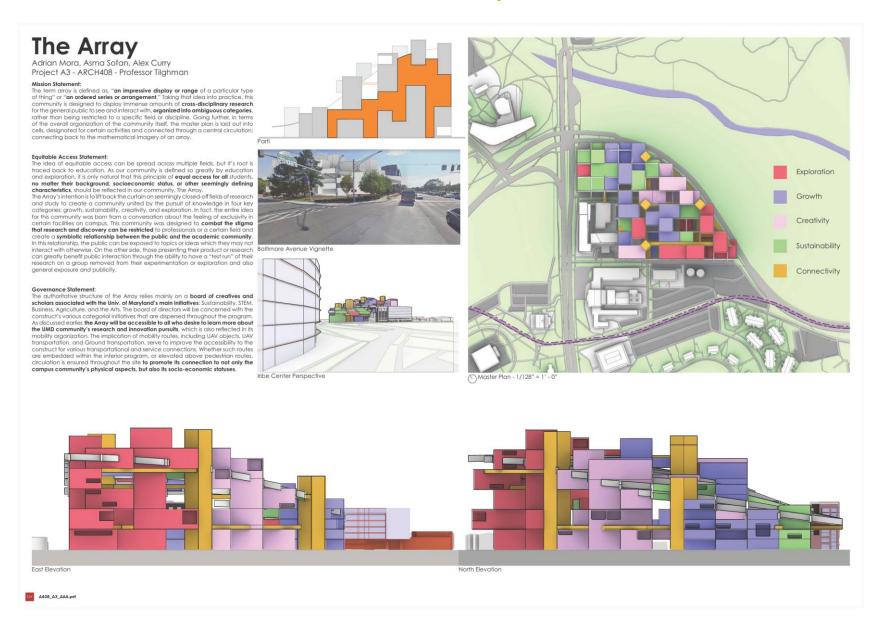


Aerial Drone Approach





THE ARRAY SPRING 2022 Aerotropolis 5.0



THE ARRAY SPRING 2022 Aerotropolis 5.0



THE ENLIGHTENANCE SPRING 2022 Aerotropolis 5.0



AEROTROPOLIS 6.0 VERTICAL COMMUNITIES SPRING 2023

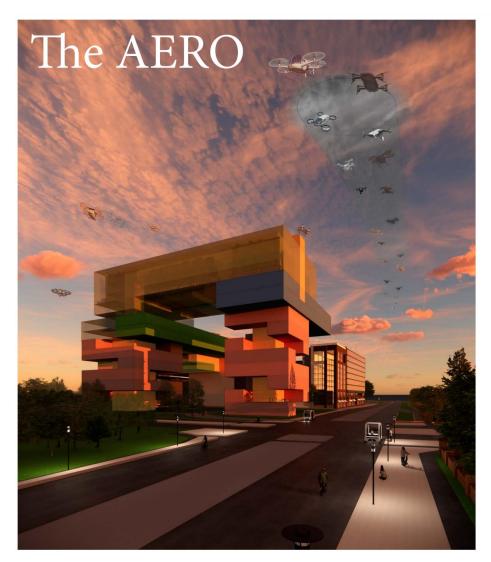
AERO SPRING 2022 Aerotropolis 5.0

Community for Advancement of Ecological Research Opportunities



Baltimore Avenue Looking South

AERO SPRING 2022 Aerotropolis 5.0



The Community of Advancement of Ecological Research Opportunities (A.E.R.O)

MISSION STATEMENT

The Community of Advancement of Ecological Research Opportunities, otherwise known as A.E.R.O is a community that intertwines, showcases, and teaches multiple stages of food production for all visitors to experience and enjoy. Whether they are learning a new skill through one of the many classes offered, or eating a meal that was freshly prepared in front of you, the A.E.R.O. has something for everyone.

ABSTRACT

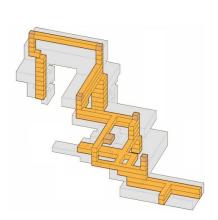
A.E.R.O. is a proposed vertical community that focuses on engaging people with shared vertical farming spaces as well as promotes a diverse culture for the enjoyment and betterment of the College Park area. A.E.R.O. will have an emphasis on research and development centered around food production with spaces opened for both local companies and individuals. The R&O space will prioritize those that would typically be underserved, giving people the opportunity to learn new skills that translate to effective market needs. People will have the opportunity to explore new creative hobbies, or gain skills in existing ones. Above the research and development will be a large skybox, referred to as "The Canopy" which contains a multi story high vertical farming space. All of these spaces will be connected by a continuous immersive environment called "The Rachis,' that enhances the translational aspect of the facility allowing the general public to take part and experience the cutting edge innovations that are taking place.

GOVERNANCE

The A.E.R.O. is a public private partnership collaborating with the City of College Park, the University of Maryland, and outside corporations, with a focus on wendors and entroparnors from the College Park area. The goal of A.E.R.O. is to provide a haven for public education to be displayed-whether it is from the onsite library, educational classes, or exposed 'factories' - fresh food from the on site vertical farms and chefs. Transportation in and out of the site can be achieved through government owned drones/ public transportation as well as taking your own personal vehicle, or you can access the site by foot as well through the numerous street connections. The same goes for transporting goods as well, A.E.R.O will provide every company with shipping drones, however a company can use their own if they choose to do so. The A.E.R.O. welcomes everyone to come and experience and enjoy the community of the future through our usage of organic and translational spaces which allow all users of all backgrounds to see and experience a wide variety of emerging fields first hand.

Equitable Access

Regardless of social status or economic background, The A.E.R.O will provide educational opportunities across all fields of food for free to all members of the College Park area. The library will also be a source of public education allowing residents to learn new knowledge across all disciplines or to check out books to read for leisure. A.E.R.O does not discriminate and wants all residents to succeed and live a healthier and more sustainable future.







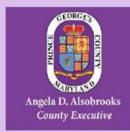






Concept Work

Aerotropolis 6.0: Vertical Communities Al IN PROGRESS: Euture of Innovation in the Discovery District



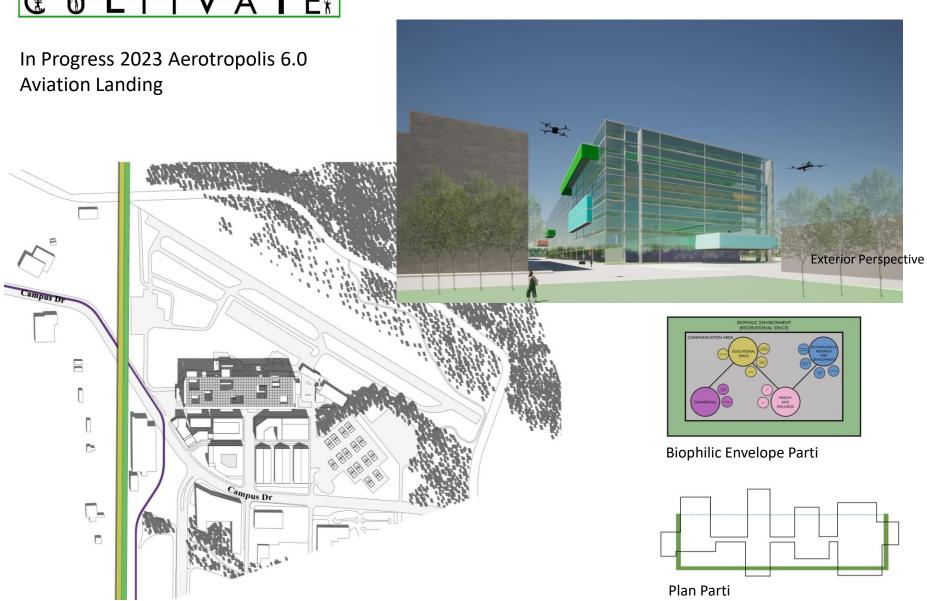




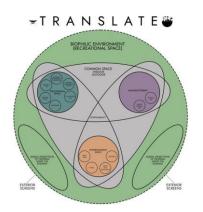
Parking Available On-Site Metro: College Park RSVP: <u>JCSousa@co.pg.md.us</u> Thursday, November 3, 2022 10am-11am 5017 Lehigh Road College Park, MD

Join us for an exciting announcement in our Discovery

G U LTIVATER



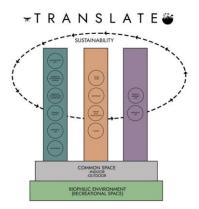
Process



Bubble Diagram



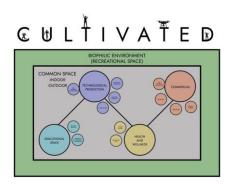
Amazon Prime Air



Stacking Diagram



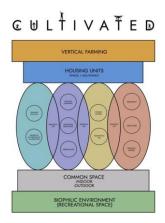
Immersive Exhibits Washington, D.C.



Bubble Diagram



TECHSLANG



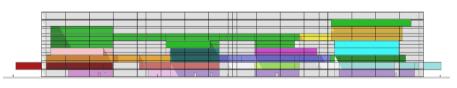
Stacking Diagram



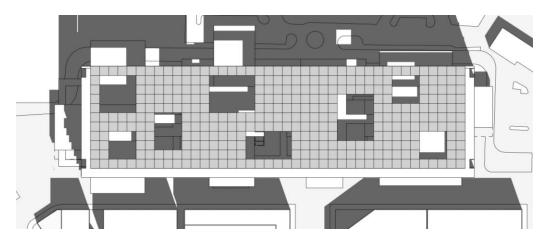
Final



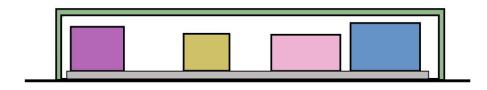
Stacking Concept Diagram



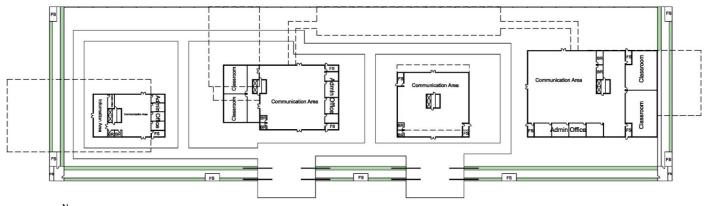
South Elevation



① Roof Plan



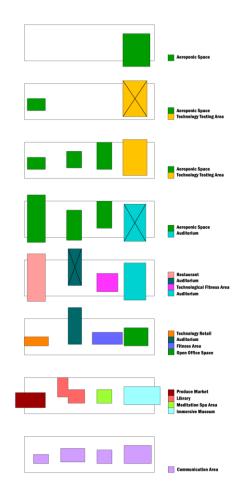
Parti Diagram







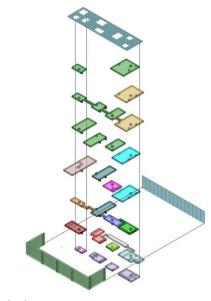
Sectional Perspective



Program Diagram



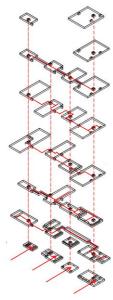
Exterior Perspective



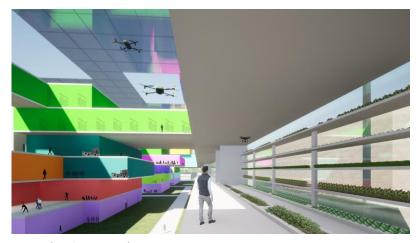
Exploded Program Diagram



Interior Perspective



Circulation Diagram





Interior Perspective



Interior Perspective



UAV Landing Diagram

Biophilic Environment Diagram

MARYLAND'S BUILT ENVIRONMENT SCHOOL

Home > News & Events > Winter Research Symposium Tackles the "Grand Challenge" of Future Cities

Winter Research Symposium Tackles the "Grand Challenge" of Future Cities

By Maggie Haslam / Feb 18, 2022



According to Associate Clinical Professor James Tilghman, the future of architecture isn't what is on the horizon; it's what is 30 feet off the ground. Autonemous aerial vehicles, once the stuff of science fiction, might not be as far away as we think, he says—and will have a direct impact on the shape of our cities.

ARCHITECTURE, PLANNING & PRÉSERVATION

MARYLAND'S BUILT ENVIRONMENT SCHOOL

Home > News & Events > Blue Sky Thinking: Students Design for an Autonomous Aerial Future

Blue Sky Thinking: Students Design for an **Autonomous Aerial Future**

By Maggie Haslam / May 6, 2022



A.E.R.O., a student master plan developed as part of Aerotropolis, imagines a possible future for Baltimore Avenue. Photo courtesy of James Tilghman).

Of the long list of considerations architects must weigh when designing a building, flying cars have—so far not been one of them. Yet experts suggest that autonomous aerial vehicles (AAVs) will be less a fantasy and more a function of our day-to-day within 20 years, impacting not only how we travel, but where we live, work, learn and play.

The Studio in the Community Spring 2022

THURSDAY, MAY 12, 2022

Blue-Sky Thinking for College Park

By Marrie Haslam / May 10, 2022

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n. Yet experts suggest that autonomous aerial vehicles will be less a fantasy and more a feasible mode of transportati within 20 years, influencing not only how we travel, but where we live, work, learn and play

Clinical Associate Professor James Tilghman and his students took on the design challenge this semester as part of his popular undergraduate design studio course, "Aerotropolis." It's transit-oriented development on steroids, where imagined skyward mercial, institutional, cultural and residential activity welcome the autonomous and aerial mobility of the near

"Drone technology is already here in its infancy," Trighman said. "Could we see the first intimations of human aerial transport in the next decade? Absolutely. The implications on how we connect and travel will directly inform urban spaces and architectural design. Our mission as architects is to bring the beauty of this technology out front and center."

Airport-student teams were asked to conceptualize multi-functional "vertical" communities that integrate UMD's top-ranke research reputation, its agricultural roots and a diverse, rapidly growing College Park community for the year 2040. To create master concepts and designs, students researched an exhaustive range of topics: smart technology and virtual reality, the

researcher John Kasarda as metropolitan activity centered closely around an airport. Tilghman's concept is designed not only to get students thinking about the future of mobility, but also to offer a glimpse into the future of urban settlements. Previou elopment; a concept from the 2021 studio earned one student an AIA Maryland design award.

Four master plans presented by student teams last month offered different, connected futures where man and m intermingle in virtually every facet of daily life. Debunking the idea that buildings must be entered at the base, they offered litiple entry levels and both horizontal and vertical circulation. Drone technology, students found, reduces burdens on a



ego-like arrangement of stacked spaces with a edge of open circulation that runs the length of the building, offering inhabitants a full vista or aerial movement. Another concept. A.F.R.O. left), offers an elevated building that owcases the full spectrum of food roduction, from research and growing to naking and consumption.

zone," said Alex Curry '22. "The exercise of having to anticipate something that I don't think anyone can fully grasp and the cope of where we'll be in 20 years has really changed how I think. It's turned my perspective of architecture completely on its

Aerial skyways are more than likely the future of mobility, said Matt Scassero, director of UMD's UAS Test Site, who was part of the studio's master plan jury. While likely still decades away, considering the design implications now is critical for keeping pace

"No one ever starts an innovation with a clean sheet of paper; it's an evolutionary process," he said. "We started from Orville and

AEROTROPOLIS 6.0 VERTICAL COMMUNITIES SPRING 2023

SUMMARY

Aerotropolis Narratives:

- Immersive Convergence
- Capitalizing on latent expertise/ H of I
- Defining next questions/fostering discussion
- New Technology supporting sustainable communities



....embodies the convergence of diverse programs and experiences that serve the growth of communities evolving in the context of emerging technologies

The Aerotropolis

connects multiple strategic goals and principles into a conceptual framework that fosters discussion, captures the imagination and communicates the vision of the (emergent

John Kasarda, The Aerotrpolis





AFROTROPOLIS 6.0 VERTICAL COMMUNITIES SPRING 2023