

**OKLAHOMA ADVANCED MOBILITY
ADVISORY COUNCIL MEETING MINUTES**

January 18, 2024

CALL TO ORDER: Mr. Schwennesen called the meeting to order at 2:04 pm

ROLL CALL: **Present:** Jared Schwennesen for Tim Gatz
 Grayson Ardies
 Amy Loftis-Walton
 Jennifer McGrail
 Maynard Factor for Steve Fendley

Absent: James Grimsley
 Jamey Jacob
 Garry Ambrose
 Hopper Smith
 Tyler Moore

ITEM PRESENTED BY ACTING CHAIR - Mr. Schwennesen

Approval of Minutes from the October 18, 2023 meeting

Approval of Minutes was deferred to next month due to a lack of quorum.

UAS/AAM MOBILITY STRATEGIC PLANNING UPDATE – Ms. Thea Ewing

Ms. Ewing, Project Management Director for HNTB gave an update on where we are at with the Oklahoma Advanced Mobility Strategy Action Plan. OAMS Progress 2023 Q2-Q3, we did our Stakeholder Meetings and Existing Conditions; 2023 Q4, we have been working on the layout of the various reports and the policy recommendations. 2024 Q1, this week, we will be turning over the Action Agenda to everybody and hope to have the Final Strategy Report done by the end of the first quarter. In this same time frame, NEXA has been working with us on the Economic Analysis, particularly on aerial mobility and drones and their usage in the state. We have been working to incorporate their data into our reporting and kind of finalize everything.

Next, she talked about OAMS Policy Recommendations for 2024. Starting with “Air Policy”, we were able to deduce from all of the comments and recommendations from industry partners. She showed a graph outlining “Action Agenda Goals,” “Legislature Objectives,” “Administrative Objectives,” and “Target Startup Year.” We need to do a community outreach by educating the public and/or local governments about air mobility and on benefits of UAS/AAM. Then, on Workforce Development Resources, we need to develop economic incentives that support locally-based startup business opportunities, which is really challenging for many states to do. So, this will be a great opportunity for the State of Oklahoma. And at the same time the Administration can position ODAA as a clearinghouse for UAS/AAM activity. An example we saw during our review of what other states have done was in New York, they offered up an incentive that allows a company space in an incubator for 1 full year as long as they are employing people within the state. So that is one of the ways you can help a locally-based company startup.

OAMS Policy for 2025 was set up in the same graph outlining several goals of “Workforce Development Focused Support,” “Infrastructure Planning,” “In-State Innovation Testing,” “Capital Investments,” and “Specialized Regulations.”

OAMS Policy for 2026 used the same graph outlining goals of “Workforce Development Broad Support,” “Plan for Local Regulations,” and “Plan to Invest in the Industry.”

Then she laid out the OAMS Policy Recommendations for 2024 about “Ground Policy”. It was set up in the same graph outlining the goal of “Focused Investment” to support industry attraction and infrastructure advancement through an “Advanced Corridors Policy”. The administrative objective would be to broadly incorporate advanced mobility projects.

OAMS Policy for 2025 was set up in the same graph outlining several goals of “Workforce Development Focused Support,”; “Infrastructure Planning,”; “In-State Innovation Testing,” and “Capital Investments.”

OAMS Policy for 2026 used the same graph outlining goals of “Workforce Development Broad Support,” “Plan for Local Regulations,” and “Plan to Invest in the Industry.”

GUEST SPEAKER

Ms. Ewing introduced Guest Speakers Philip Dymont and Michael Dymont from NEXA Capital Partners. They have done a great job of sharing with us an economic analysis they have done around the world for many cities and states. They have been very helpful working with us on digital assets and mapping for websites and dashboarding of the Strategy Plan.

They gave a presentation about “UAM Geomatics Portal & Gateway”. They have done statewide examinations in the states of Ohio, Virginia, Arkansas, and Utah, outside the US in Canada and the Kingdom of Saudi Arabia. In November 2022 the Government Accountability Office (GAO) came out with its findings on Advanced Air Mobility to brief the US Congress on basically what is Advanced Air Mobility and why they should care about it. The US Congress conducted an extensive survey of all the different forecasts and reports around the country, and they determined that our data was the best. They then used all of our data in their finding and reports. It can be found at <https://www.gao.gov/products/gao-23-105188>

So, when we were invited by Oklahoma to help with their Advanced Air Mobility, the first thing we did was build a database repository of GIS information for existing infrastructure that may be relevant to air mobility around the state. He showed a snapshot of the GIS Map for Oklahoma using the ArcGIS program. We worked with a number of different experts around the state to gather the best data we could so that you all can have this information as a powerful tool moving forward for whatever you would like to do, i.e., building on a network of vertical or root designs. There is enough data in here that really the only limit is how creative you can be.

He showed a wiring diagram that showed a high-level overview of their process in terms of the dynamic modeling they conduct for the state. They produce a business case forecast for advanced mobility until the year 2045. The first column, “Inputs,” rounds out our 5 passenger use cases, i.e., taxis, emergency vehicles, airlines, etc. The second column, “Assumptions/Drivers,” is the four 4 supply chains that we forecast. We forecast our ground infrastructure, which includes our passenger handling facilities and vertiports. Basically, that is a number of reports that we use both CAPEX and OPEX costs. We have our operator supply chain and then our vehicle supply chain. So, we forecast the number of vehicles that need to be produced. We also discussed the potential of setting up an OEM manufacturer in the state of Oklahoma if you could attract them to come to the state. The last supply chain is our UATM Infrastructure Inputs, which is our air traffic management, supply chain, CAPEX, and OPEX for all of that. So, the 3rd column is “Modeling and Analysis”, which we produce a holistic view of balance sheets and cash flows for our regions to understand exactly how much money those supply chains will require. Thus influencing the adoption rates for all of the potential for advanced air mobility and producing our “Inputs” for our economic impact assessment. You take those numbers and work with them, plan for the last 4 years or so to develop and refine some unique coefficients that are unique to advanced air mobility. Because advanced air mobility is not an existing industry, we’ve worked with IMPLAN to modify a sort of already existing aviation coefficients to assess the potential for advanced air mobility better. He talked about “Infrastructure OPEX/CAPEX Components” and then about “10 Unique Factors Help Forecast Passenger Demands” for our region and identify the potential for advanced air mobility. He showed a flow diagram about “City Demand Models” that shows how our ticket pricing works.

He had a slide labeled “Six Oklahoma Geographical Areas.” It sums up the entire state and is then broken out into 5 phases. 1st phase is 2025; then each other phase is in 5-year increments.


Next was the slide on “Oklahoma AAM for – Key Model Outputs”.

Oklahoma Statewide 2023-2045 (\$US)		AAM Business Case EcoSystem					SUM	Pillar Totals
Year		2023-2025	2026-2030	2031-2035	2036-2040	2041-2045		
Demand (Passengers)	Nascent		1,180,000	2,734,000	6,734,000	14,486,000	25,133,000	
Ground Infrastructure	Ground Infrastructure OPEX	\$15,110,000	\$75,820,000	\$94,690,000	\$109,000,000	\$136,540,000	\$431,160,000	\$558,309,000
	Ground Infrastructure CAPEX	\$33,690,000	\$29,540,000	\$33,980,000	\$5,450,000	\$24,440,000	\$127,100,000	
RTM/UATM	RTM/UATM Cost OPEX	\$4,308,000	\$30,120,000	\$66,777,000	\$123,887,000	\$231,763,000	\$456,855,000	\$523,935,000
	RTM/UATM Cost CAPEX	\$8,711,000	\$19,840,000	\$7,017,000	\$12,823,000	\$18,690,000	\$67,081,000	
UAM Operators	Passenger Revenues	Nascent	\$313,269,000	\$412,426,000	\$668,104,000	\$1,255,370,000	\$2,649,169,000	\$4,825,446,223
	MedEvac Revenues	Nascent	\$187,711,000	\$244,055,000	\$336,976,000	\$354,163,000	\$1,122,905,000	
	eVTOL Cargo	Nascent	\$80,013,275	\$141,699,112	\$282,636,984	\$549,019,852	\$1,053,369,223	
	Drone Services	See Supplementary Report						
Vehicles	Vehicle Purchases	\$55,728,000	\$134,640,000	\$144,147,000	\$182,167,000	\$211,571,000	\$728,253,000	\$728,250,000
Oklahoma Statewide Grand Total		\$117,552,000	\$790,950,000	\$1,003,096,000	\$1,438,428,000	\$2,232,545,000	\$5,582,570,000	\$5,582,570,000

R/I	4.46
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Average eVTOL Passengers per Day	N/M	647	1,498	3,690	7,938
eVTOL Pax / Commercial Air Travel	N/M	2%	3%	7%	12%
Revenues per Passenger	N/M	\$265	\$151	\$99	\$87

Note: N/M - Not Meaningful



UAM Geomatics
A NEXA Capital Company

So, we look at our ground infrastructure. These are the vertiports from CAPEX and OPEX perspective. Next you have the RTM/UATM Cost OPEX and CAPEX. You have the UAM Operators, so, these are our revenue numbers, ticket sales for passenger, MedEvac, Cargo and then our drone services report is a supplementary report. It's separate, and goes into greater detail about all of the results from the drone side of things. And then our vehicle sales as well.

Next slide was the “Forecasted Vertiports” that we forecast for the State of Oklahoma:

Forecasted Vertiports

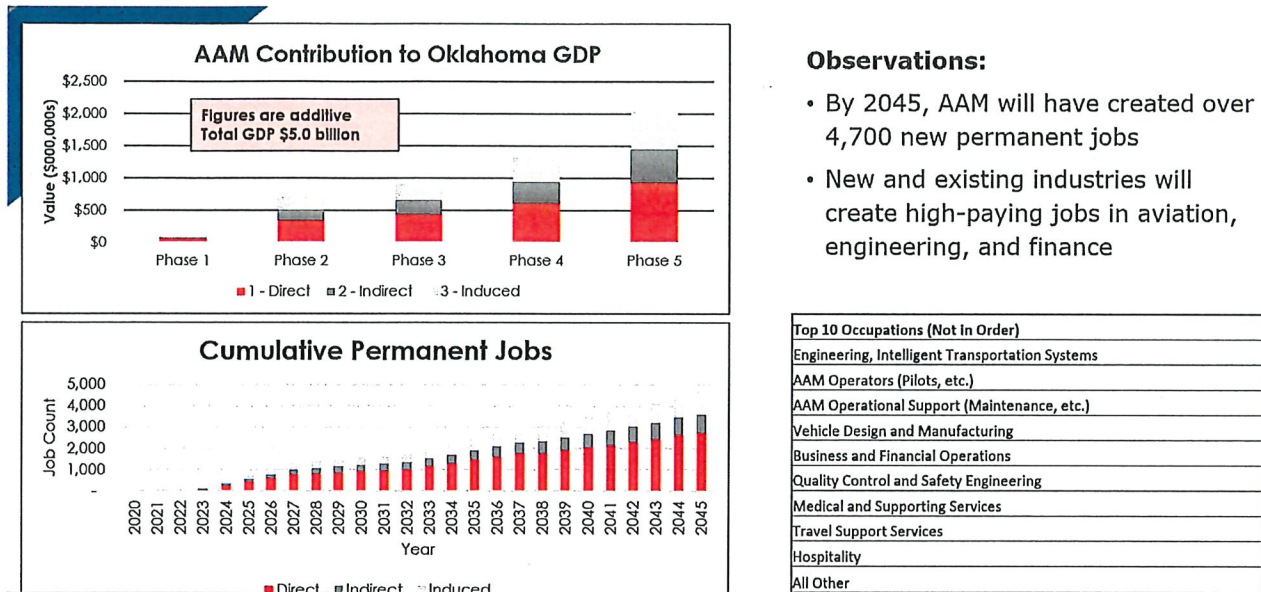
By 2045, we have forecasted the requirement of 30 vertiports to be constructed around the state of Oklahoma. These vertiports will vary by size and by capacity. The majority of the forecasted vertiports are categorized under remediation meaning that existing heliports and small airports will need a level of investment in order to facilitate advanced air mobility operations. The total CapEx for vertiports in Oklahoma by 2045 is just under \$130 million

Vertiport Type	Total Vertiports	Total Cost
Remediation	18	\$11,759,390
Unserviced Vertipad	4	\$4,132,000
Serviced Vertiports	6	\$10,872,000
Airport Multiports	2	\$69,120,000
Lifetime Improvements		\$31,232,838
Total	30	\$127,116,228

The chart is pretty self-explanatory.

Then, we look at truck volumes for existing commodities within the cargo. We operate under the assumption that advanced air mobility will mostly focus on a certain class of commodity, whether it be more time-sensitive or lighter goods that are more valuable so they can bear the additional costs of it being flown instead of via truck for example. Because of how these goods are tracked and released by the Department of Commerce and the Department of Transportation, we are able to have really granular insight into all of these different commodity classes. And so, this is how we determined that about a billion dollars in revenue for easy tow cargo, and that's an important distinction and the methodology that was used for basically above fifty pounds in terms of the weight of the goods. So, above what would be classified as a sort of drone operation, these are eVTOL cargo.

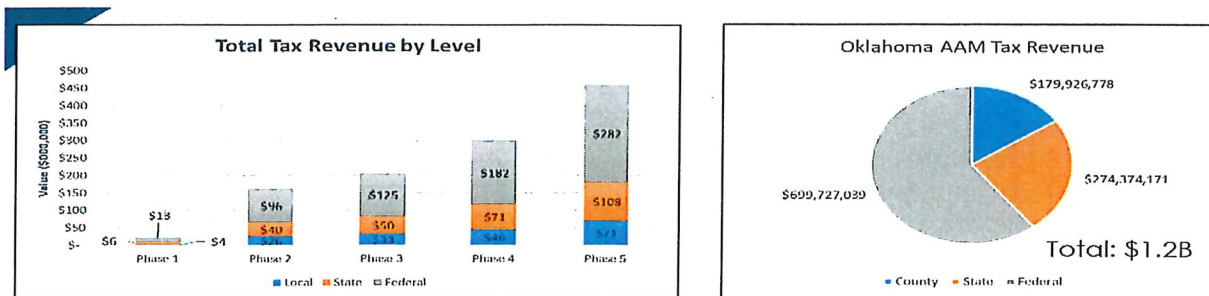
So, we've examined the direct potential for advanced air mobility, and the next step is looking at what is the impact of that on the larger economy as a whole within the state. Below is a chart of what those results are:



So, what you're looking at is a total of \$5 billion dollars by 2045 for the state which is a substantial Opportunity and that's both Direct, Indirect, and Induced.

The number of jobs we forecast is about 4,700 new jobs for advanced air mobility. That number almost doubles when you are able to attract an OEM Manufacturer and site one of these larger factories or assembly facilities, that number greatly increases. So, one of our recommendations, which is very important, is to try to attract one of these OEM manufacturers into the State.

Then the last plan is our input on tax implications, below is a chart of our revenue perspective from local, state and federal taxes:



The revenue perspective is \$1.2 Billion dollars in taxes generated by 2045. This is very important when you're talking to legislators or different stakeholders in terms of tax revenues in order to gain support for advancing air mobility in your state.

You can contact me, Phil Dymont, Vice President, by phone at 202-499-5105, or email Philip.dymont@nexacapital.com. Our website is www.nexacapital.com.

Lots of questions and discussion followed this presentation.

EMERGING AVIATION SUBCOMMITTEE UPDATE – Mr. Doug Wood

Mr. Wood said their meeting last week was picking up some of the presentations by HNTB and NEXA to get that front-loaded to the sub-committee tomorrow and for them to start their review process. Another topic we talked about was trying actually to recruit UAS/AAM companies to come to Oklahoma. We need to make contact with those companies or work with Commerce to make that happen. We talked about the success of our in-person meeting that was held at the HAMM Institute in November, and we are looking forward to trying to schedule 1 or 2 more of these in-person meetings, perhaps at Choctaw Nation or at the University of Oklahoma. T

AUTONOMOUS VEHICLE WORKING GROUP UPDATE – Mr. Jared Schwennesen

Mr. Schwennesen gave an update on the Autonomous Vehicle Working Group. The last 2 months have been very quiet for the AV Working Group, but we look forward to attending some upcoming meetings. On January 24th at 1:00, we are invited to participate in a virtual national "Fireside Chat" on how Amazon is "Redefining Transportation" hosted by Pave and Tim Goodman, Amazon Associate General Counsel and Director, Worldwide Road Safety & Compliance.

OPEN DISCUSSION

Michelle Merchant with INCOG said they have a pilot project they are moving forward that has been funded by the DOE for a passenger autonomous micro-transit. They said they haven't made a lot of public announcements yet because they are still in the early phases. She was wondering if/when Grant Funding might be available from the Advanced Mobility Pilot Program.

Jared said he doesn't have a great answer for her right now, and Director Ardies didn't know of any funding yet. If we find out differently, we will let you know.

CLOSING REMARKS

Mr. Schwennesen thanked everyone for attending and stated since we don't have a quorum we won't take an adjournment motion, but the next meeting will be held on February 15th @ 2:00 pm.

The meeting adjourned at 3:04 pm

Approval of Minutes:



Jared Schwennesen – Acting Chairman