

This white paper demonstrates how new geomatics tools can be utilized to conduct sophisticated market analysis leading to actionable insights for industry stakeholders, whether they be operators, investors, or policy makers.

Analyzing Urban Areas for UAM: Deriving Value from Existing Heliports

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When considering both market potential and existing logistical transportation challenges, New York City emerges as one of the most interesting business cases for Urban Air Mobility (UAM) across a variety of missions. It is estimated that the Big Apple will be one of the world's largest markets for UAM, but the city has been [historically conflicted](#) embracing Urban Air Mobility. [Recent helicopter incidents](#) have given residents pause, but emerging electric vertical take-off and landing (eVTOL) aircraft are projected to be much quieter and safer than their helicopter predecessors. Early adopters of eVTOLs could capture first mover advantages and create a strong market presence in Urban Air Mobility with proper execution and utilization of the city's [existing infrastructure](#).

Unused Assets

There are thousands of rarely used heliports sprinkled throughout cities around the world, and New York City is no different. The lack of helicopter traffic in many urban areas is largely due to existing regulations around noise and safety, but there is an expectation that these regulations will potentially shift to accommodate the emerging [Urban Air Mobility](#) market and its various use-cases. Assuming the regulatory environment in a major urban area like New York City becomes more friendly to this transformative industry, eVTOL operators will be eager to capitalize on access to urban airspace but will be sensitive to infrastructure costs and existing

support structures. For an on-demand mobility operator like [Volocopter](#) or [Uber](#), New York City offers an interesting case study on how existing infrastructure can be used to serve a new high-value market. There are numerous ways to [size an urban market](#) for mobility. One method that can offer some interesting insights is to view the market through the utilization of existing assets to enable operations. Given the existing infrastructure in the city, how do you begin to validate the economics of supply and demand and establish an operational profile? There are many ways to think about this problem, and we have used [ArcGIS](#) to show how geomatics can be used to influence financial and economic business planning.

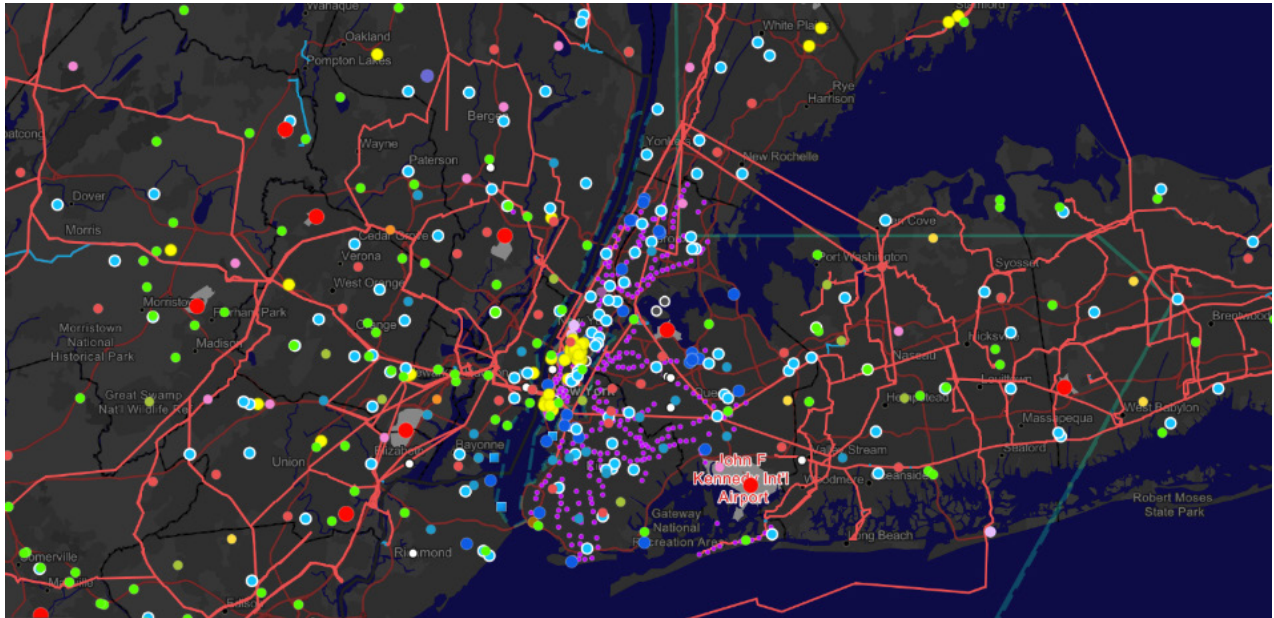


Figure 1--Map of relevant UAM assets in the New York City Area, with existing heliports in green.

Mapping New York City

Using new geospatial tools and data sources within ArcGIS, we can take raw data inputs and turn them into powerful visual outputs that help contextualize market use cases and thus validate (or dismiss) potential investment decisions. [UAM Geomatics](#) has collected thousands of data points around each city, including existing heliport locations, demographic information, and traffic patterns, to help our clients better understand dynamic urban environments. As an example, an operator can perform an extremely powerful analysis by looking at populations within a two-mile radius of existing heliport locations to help determine demand-side market size statistics at different price thresholds. If we do that for New York City, we produce the following outputs:

Number of Heliports:	167
Area (Square Miles):	602.3
Population:	5,299,274
Bachelor's Degree or Higher:	925,149
Reported Median Income:	\$105k

These mapped heliports can then be ranked according to key variables to decide which will be stood up for early investment. This sample analysis can help us identify relevant socio-economic factors in a potential market to help with business case modeling, but it is possible to dig much, much deeper. Which existing heliports can service the largest amount of people and between which routes? Which heliports are concentrated in the [highest traffic areas](#)? Where are there power substations to support eVTOL charging? Where are [Global Fortune 1000](#) headquarters located?

The data supports an extremely granular level of detail, and there are few constraints to what factors we can consider when harnessing geomatics to inform business cases. One such business case, the creation of “verti-pairs” (flights between two vertiports), becomes much easier to quantify and validate. For example, there are 1,590 people that live in a 2-mile radius of a heliport in Stamford that have a 90+ minute commute. This is a substantial target market that could turn into a customer base for an

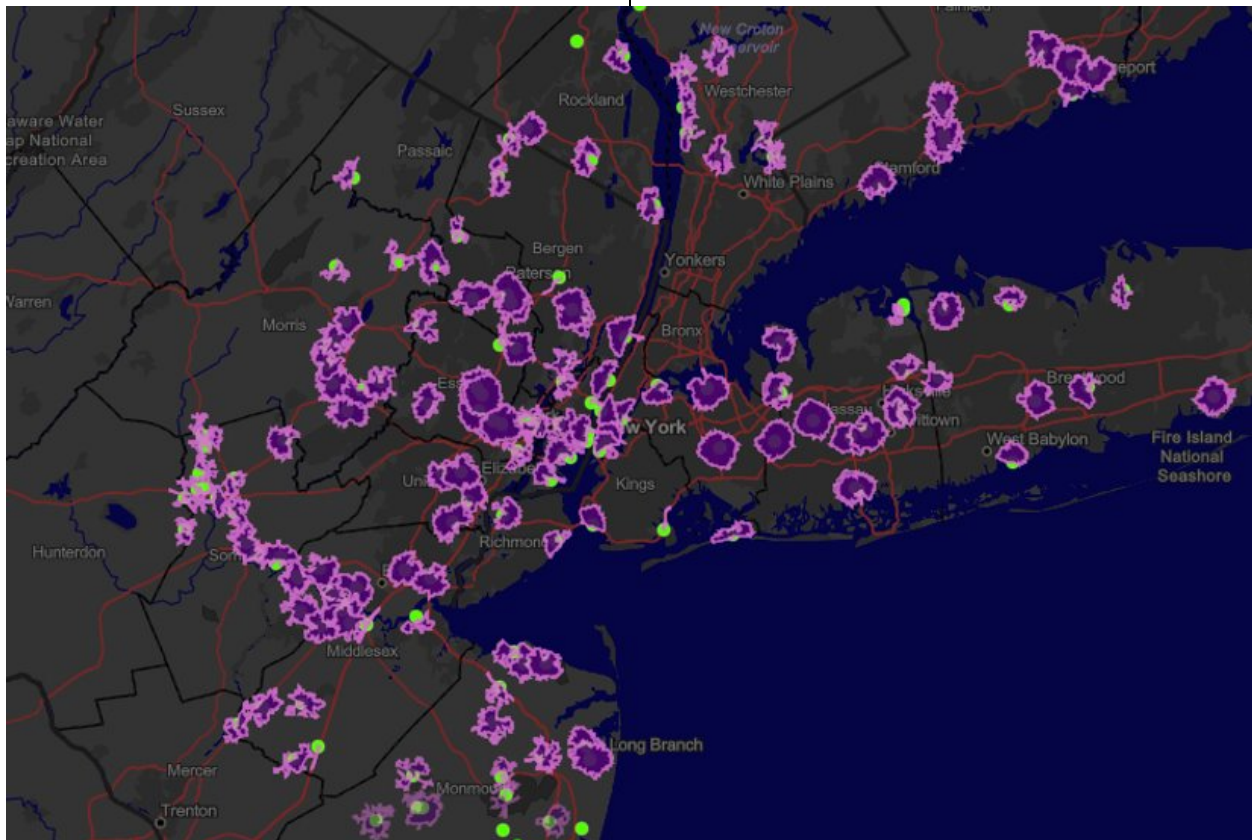
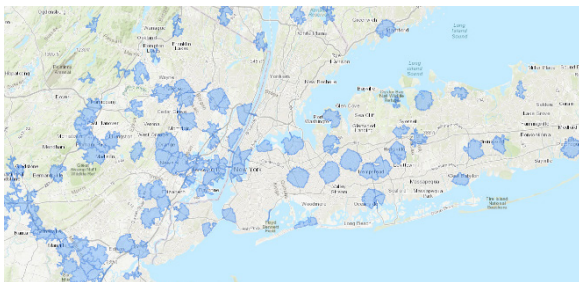


Figure 2--Population areas around existing New York City area heliports

operator. Running the same analysis, there is estimated to be over 40,000 people in Long Island.

Of course, this is a highly simplified analysis for on-demand mobility operators in an extremely complex market. There are a [whole host](#) of other [incredibly important factors](#) to consider when looking at existing heliports, from remediation costs and viability, to real estate considerations and public perception, to security and regulation. This analysis merely



scratches the surface, but it shows the power that harnessing geomatics for business planning can provide in making more informed decisions.

Let Us Help

The UAM Geomatics team is actively analyzing major metropolitan areas and helping decision makers solve complex Urban Air Mobility problems across a variety of missions and use cases. We are gathering and analyzing spatial data to allow early adopters to hyper-focus their business models and capture optimal results. The analysis above is a sample look at some of the deep diving we can do to help with your strategic planning efforts, regardless of mission type. Our work is validated by over 30 years of aerospace and business aviation expertise, having helped countless [clients large and small](#) navigate



unique aviation challenges with ease. Contact us today by e-mail at daniel.miller@nexacapital.com or call us at 202-499-5070 to discuss your challenges and learn how we can help. Additionally, we will be speaking and exhibiting alongside our numerous industry partners at future industry events. See us in person at the following:

2019 NBAA Business Aviation Convention & Exhibition

Where: Las Vegas, Nevada

When: October 22-24, 2019

Website: <https://nbaa.org/events/2019-business-aviation-convention-exhibition/>

Citytech

Where: Milan, Italy

When: November 20-21, 2019

Website: <http://citytech.eu/en/hp>

2020 HAI Heli-Expo

Where: Anaheim, California

When: January 27-30, 2020

Website: <https://www.rotor.org/Home/HELL-EXPO>