

Sustainable City Travel

By Archer



Archer¹ Aviation, based in Palo Alto, California, USA, is working to build an electric vertical takeoff and landing (eVTOL) aircraft and aerial ridesharing service, that will move people throughout congested cities in a quick, safe, sustainable, and cost-effective manner. Through their work both on their eVTOL aircraft, and with partner cities such as Los Angeles and Miami, they are laying the groundwork to curb the growth of urban congestion, and the resulting historic levels of emissions in populous areas.

Modern cities are in a transportation environment crisis, struggling to provide solutions for the evolving urban landscape. As urban populations grow, the crisis will be exacerbated by magnifying the negative health and environmental impacts experienced by millions of urbanites. By 2050, the United Nations (UN) projects that 68% of the world's population will live in urban areas². This will create nightmarish traffic jams, painstaking commutes, and the pollution they will create, more impactful than today. Beyond the mere stress and inconvenience of traffic, a study³ revealed that long commute times lead to a lowered quality of life for urbanites. Increased congestion exposes the population

to higher levels of pollution and, as a result, a climbing mortality rate.

Current solutions are limited and not always a clear path to eliminate the growing health and environmental concerns. There are various modes of transportation which will reduce emissions, however, not all benefits will be achieved. Electric vehicles will reduce emissions, although the existing congestion problems will remain. Rail will decrease the need for multiple, individual vehicles, however, in modern urban environments physical space is at a premium, making even subterranean routes non-starters. Current aircraft options provide for more open paths around the city, however their negative contributions are well-documented.

A modern helicopter, though vastly improved in efficiency, is still responsible for significantly higher emissions than an automobile, despite a similar passenger payload. Looking beyond the negative impacts to air quality, helicopters are a major contributing factor to increased noise levels in modern urban environments. Multiple studies have shown a clear correlation between these increased noise levels and a decrease in cardiovascular health⁴.

1 <https://www.archer.com/>

2 <https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html#:~:text=News-,68%25%20of%20the%20world%20population%20projected%20to%20live%20in,areas%20by%202050%2C%20says%20UN&text=Today%2C%2055%25%20of%20the%20world's,increase%20to%2068%25%20by%202050.&text=The%20Urban%20population%20of%20the,to%204.2%20billion%20in%202018>

3 <https://blogs.lse.ac.uk/usappblog/2016/05/12/the-bigger-and-denser-the-city-you-live-in-the-more-unhappy-youre-likely-to-be/>

4 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3971384/>



Archer is aiming to redefine the future of urban commuting. Minimal takeoff and landing space requirements allow for the use of existing structures, such as parking garages and airports, to provide service throughout a city. Integration into existing urban landscapes will address the shortcomings of current transportation networks, creating broader multi-modal options that reduce the need for cars, thus and transforming the daily lives of millions of commuters. Beyond its impact on commuters, Archer's eVTOL aircraft has the potential to positively impact the lives of every urbanite.

Archer is taking aspects of modern aircraft, expanding technological boundaries, and creating the next generation of air travel. Their current demonstrator aircraft, Maker, is powered by six independent battery packs, each independently powering a pair of motors. This design allows for propulsion redundancy and, unlike helicopters, has zero catastrophic single points of failure. Purely electric propulsion, in addition to eliminating flight emissions, allows for a dramatic decrease in noise pollution. The sound produced from their aircraft is anticipated to be 30dB quieter than a helicopter at cruising altitude, causing it to virtually disappear into the background noise of the street below.

While others in the space have chosen to tailor their product to regional and long-haul travel, Archer is singularly focused on intra-city mobility, working to reduce traffic congestion, reducing the impact of growing emissions, and by connecting people to their extended communities. Based on Archer's data estimations, the target route of 20-60 miles will accommodate over 95% of trips taken in urban areas today. The dedication to innovative and efficient design and operations, Archer believes their aerial ridesharing service will deliver an affordable alternative method to complete those trips safely and efficiently.

The next three years are expected to be among the most exciting in the company's history. The plan to debut their production aircraft design, build and begin production in their sustainably designed manufacturing facility, solidify initial infrastructure in their partner cities, and welcome commuters to a whole new form of travel. While that might sound like far more than three years can fit, Archer believes their pace of innovation, development, and design will be attained. Archer has started flying their first aircraft⁵, have established partnerships with United Airlines⁶, Stellantis⁷, and REEF⁸, and are well-capitalised as a result of being publicly traded⁹ company as of 2021. A safer, more sustainable solution to urban mobility is possible, and Archer looks forward to making it a reality.

5 <https://archer.com/news/archer-takes-to-the-skies-with-first-hover-flight-of-maker-aircraft>

6 <https://archer.com/news/archer-a-leading-urban-air-mobility-company-to-list-on-nyse-through-merger-with-atlas-crest-investment-corp>

7 <https://archer.com/news/archer-taps-fcas-scale-and-expertise-to-accelerate-electric-vertical-take-off-and-landing-aircraft-evtol-production>

8 <https://archer.com/news/archer-and-reef-team-up-to-tackle-urban-congestion-with-vertiports-and-urban-air-mobility-networks>

9 <https://archer.com/news/archer-begins-trading-on-the-new-york-stock-exchange-under-the-symbol-achr>