

Combined Electric Aircraft and Airspace Management Design for Metro-Regional Public Transportation

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Purpose

There are substantial future challenges as related to sustaining and improving efficient, cost-effective, and environmentally friendly transportation options for urban regions. This study -- and an earlier companion study -- is investigating the feasibility of an aviation solution for future urban transportation. The current work is performing a conceptual design and systems analysis investigation into a notional metropolitan aerial transportation system. Specifically, this work seeks to determine the most feasible approach to one day develop a realizable network of station-to-station VTOL aerial vehicles (Hoppers) -- ideally employing electric propulsion -- serving the transportation needs of urban metropolises.

Background

The proposed study directly addresses NASA strategic goals to advance aeronautics research for societal benefit. Transportation is a first-order driver to the economy; a lower cost and adaptive metro transportation system would have a first-order effect on regional economies and overall to the Nation.

This study's anticipated biggest challenges are: airspace management for large numbers of low-flying aircraft; estimates of noise and emissions; unknowns related to analysis methodologies and performance of "Alternative Business Models" definition and analysis task.