

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

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An electric aircraft and airspace management system is designed to provide metro-regional transportation – a subway system in the air. The unique aspect of this study is the conceptual design of compatible aircraft and airspace that transport multiple commuters over designated short distances under low service ceilings. The objective is to determine the technical feasibility of aircraft to provide a solution to regional mass transportation; a capability currently achieved through road and rail. A compelling aspect is that air-connected nodes (station stops) could be dropped, added or reconnected to suit real-time traffic needs – a feature impossible to attain with a rail system. Results of a commuter simulation are shown for a network in the San Francisco Bay Area. The simulation features three conceptual rotorcraft of different passenger count flying optimized schedules to meet estimated demand patterns. Technology requirements for enabling electric propulsion of the fleet are estimated. Schedules and fleet mix are shown for three levels of total ridership. Compatibility with existing air traffic is assessed.